OCAK-ŞUBAT 2021 JAN-FEB

CARBON 6

SAYI/NO: 1

TMMOB Kimya Mühendisleri Odası Ankara Şubesi Öğrenci Komisyonu e-Bülteni
UCTEA Chamber Of Chemical Engineers Ankara Branch Student Commission e-Bulletin

Süreli Yayın, İki Ayda Bir Yayımlanır
Periodical - Bimonthly

Ocak-Şubat / January-February 2021
Sayı/No :1

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Değerli meslektaşlarımız ve meslektaş adaylarımız,

Mühendislik; bilim yoluyla elde edilmiş tüm bilgilerden, akıl ve deneyim yoluyla somut sentezlere vararak; insana ya da genel kapsamıyla canlıya yararlı oluşumları yaratma gücü ve çabasıdır. Kimya Mühendisliği ise materyallerin kimyasal yapıları, enerji içeriklerinin veya fiziksel hallerinin değişime uğradığı proseslerin geliştirilmesi ve uygulanması ile ilgilenen engin ve çok yönlü bir mühendislik dalıdır. Bizler; TMMOB Kimya Mühendisleri Odası Ankara Şubesi Öğrenci Komisyonu olarak bağımsız düşünen, sorgulayan, gelişmeyi amaçlayan ve üreten, geleceğin Kimya Mühendisleri adaylarıyız. Yaz kampı ile başlayan ve 5'imiz 1'iz Etkinlik serileri ile devam eden bu süreçte ekip olma ve kolektif çalışma prensipleriyle sürekli yeni fikirler üretmek hedefimiz oldu. Günümüzdeki pandemi koşullarında dahi durmak bilmeden, online olarak etkinliklerimize ve çalışmalarımıza devam ettik. Yeni fikirler üreten ve araştıran ekibimizle beraber, ulusal ve uluslararası tüm Kimya Mühendisliği öğrencilerine ulaşma hedefiyle "CARBON" dergisini çıkarma kararı aldık. Dergi ile birçok meslektaşımıza ulaşmak; Kimya Mühendisliği öğrencilerinin araştırmalarını, sorunlarını ve daha bir çok konu başlığını inceleyerek onlara üretim alanı sunmayı amaçlıyoruz. "CARBON" tüm Kimya Mühendisliği öğrencilerinin ortak sesi olma yolunda ilk adımını bu sayıyla atıyor. Emeği geçen tüm dostlarımıza ve Öğrenci Komisyonumuza teşekkürü borç biliriz.

Yaşasın KMO!

Yaşasın KMO Öğrenci!

Dear colleagues and colleague candidates,

Engineering is reaching concrete synthesis through intelligence and experience from all the information obtained through science; It is the power and effort to create formations that are beneficial to human beings or living things in general. On the other hand, Chemical Engineering is a vast and versatile branch of engineering that deals with the development and application of processes in which the chemical structures, energy content, or physical states of materials change. We are UCTEA Chamber of Chemical Engineers Ankara Branch Student Commission and we are candidates for future Chemical Engineers who think independently, aim to develop, and produce. In this process, which started with the summer camp and continued with the 5 of us 1 event series, our goal was to constantly generate new ideas with the principles of being a team and working collectively. We continued our activities and work online nonstop, even in today's pandemic conditions. Together with our team that produces and researches new ideas, we decided to publish "CARBON" magazine to reach all Chemical Engineering students nationally and internationally. To reach many of our colleagues with the magazine; We aim to present a production area to Chemical Engineering students by examining their research, problems, and many other topics. With this issue, "CARBON" takes the first step towards becoming the common voice of all Chemical Engineering students. We would like to thank all our friends and the Student Commission who have contributed.

Long live CCE!

Long live CCE Student!

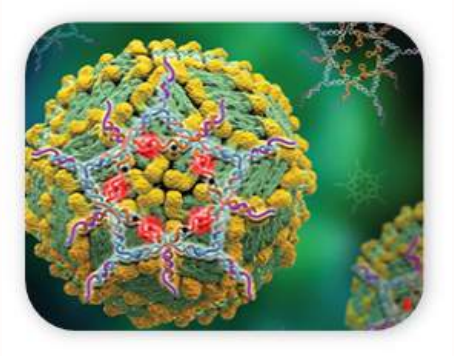
Muratcan Toğan
Hacettepe Üniversitesi Kimya Mühendisliği Lisansı 2. Sınıf Öğrencisi
TMMOB Kimya Mühendisleri Odası Ankara Şube Öğrenci Komisyonu Temsilcisi

KORONAVİRÜS SALGININDA KİMYA MÜHENDİSLERİNİN YERİ

YAZAN:ABDELFETTAH ERBAI
ANKARA ÜNİVERSİTESİ KİMYA MÜHENDİSLİĞİ LİSANS 1. SINIF ÖĞRENCİSİ

Tüm dünyayı ve elbette meslek gruplarını etkisi altına alan salgın, bizim mesleğimizi ne ölçüde etkiledi? Bilim dünyasının gizli kahramanları arasında kimya mühendislerinin yeri nedir?

Bu yılın 11 Mart'ında Dünya Sağlık Örgütü, yeni koronavirüs SARS-CoV-2'nin neden olduğu solunum hastalığı COVID-19'un bir pandemi olduğunu açıkladı. Bu bulaşıcı hastalıkla dünya çapında milyonlarca insanın hayatı sekteye uğradı. Kimya mühendisleri, COVID-19 'un yarattığı zorluklara son vermek için çalışan bilim topluluğunda yer alıyor. Bu araştırma konusu; tıbbi tedarikin üretimi ve lojistiği, koronavirüsün çevrede kalıcılığı açısından COVID-19 salgınına yönelik başlıca kimya mühendisliği çözümlerini vurgulamayı amaçlamaktadır. Mühendisler, kritik olarak ihtiyaç duyulan tıbbi malzemeleri üretmenin yollarını icat ediyor. Örneğin, kişisel koruyucu donanımlar ve N95 maskeleri, yüz siperleri, temassız kapı açıcılar ve vantilatör bileşenleri gibi sürekli artan ekipmanlara ihtiyacı karşılamak için 3D baskı devreye giriyor. Koronavirüs salgını dünyadaki her ulusta on binlerce insanı enfekte ederken; endüstri ve akademideki mühendisler ve bilim adamları, hastalığın önlenmesinde, tedavisinde ve test edilmesinde bütünleyici bir rol oynadılar:



- Tıbbi malzeme üretimi (yüz maskeleri, kalkanlar, ventilatör parçaları),
- Sağlık bakım ürünleri ve gıda tedariklerinde lojistik,
- COVID-19 etkisiyle ilgili biyosistemlerde modelleme ve hesaplama,
- Hastaneler için tıbbi oksijenatör tasarımı (Oksijenle Zenginleştirilmiş Hava),
- Bireyler için kişisel oksijenatör tasarımı,
- Bireysel koruma maskelerinin (aerosoller, biyolojik kirleticiler) analizi, modellemesi ve tasarımı,
- Maskeleme ve tek tek oksijenatör üretimi için 3D baskı teknolojilerinin uygulanması,
- Atık ve atık su arıtma.

Virüs için bir aşı oluşturulduktan sonra, bunun ölçeklendirilmesi ve kitlesel olarak üretilmesi gerekecektir. İstenilen miktarda birim üretmek için güvenli, verimli ve uygun maliyetli bir süreç tasarlamak kimya mühendislerinin görevidir. Büyük olasılıkla bu, üretim rotasını modellemek ve kullanılacak ideal ekipmanı belirlemek için bir yazılım kullanılarak yapılacaktır. Bundan sonra; teorik tasarım reaktörler, borular vb. kullanılarak fiziksel bir tasarıma dönüştürülecek. Daha sonra süreci izleyecek her türlü bakım gereksinimlerini gerçekleştirecek ve süreçte gereken değişiklikleri yapacaklar. İlaç üretiminin, ürün güvenliği ve düzenleyici konular açısından bazı benzersiz zorlukları vardır ancak temel ilkeler, kimya mühendislerinin çeşitli diğer endüstrilerde kullandıklarıyla aynıdır.

KAYNAKLAR:

https://www.researchgate.net/publication/342366322_COVID-19_and_the_Role_of_Chemical_EngineersAl-sharify,Zainab T.. (2020). (COVID-19) and the Role of Chemical Engineers.
https://www.frontiersin.org/research-topics/13855/chemical-engineering-response-to-covid-19-challenges#overview

THE PLACE OF CHEMICAL ENGINEERS IN THE CORONAVIRUS OUTBREAK

WRITTEN BY: ABDELFETTAH ERBAI
ANKARA UNIVERSITY CHEMICAL ENGINEERING 1ST YEAR STUDENT

On March 11th of this year, the World Health Organization announced that the respiratory disease COVID 19 caused by the novel coronavirus SARS CoV-2 is a pandemic. The lives of millions of people around the world have been disrupted by this infectious disease. Chemical engineers are part of the scientific community working to end the challenges posed by COVID-19. This essay aims to highlight; the production and logistics of medical supply, the main chemical engineering solutions for the COVID-19 outbreak in terms of the persistence of the coronavirus in the environment. Engineers are inventing ways to manufacture critically needed medical supplies. For example, 3D printing comes into play to meet the ever-increasing need for equipment such as personal protective equipment and N95 masks, face shields, non-contact door openers, and fan components. While the coronavirus epidemic infects tens of thousands of people in every nation in the world; Engineers and scientists in industry and academia have played an integral role in preventing, treating, and testing the disease. Here are some of the examples:

- Medical equipment production (face masks, shields, fan parts),
- Logistics in health care products and food supplies,
- Modeling and computing in biosystems regarding the effects of COVID-19,
- Medical oxygenator design for hospitals (Oxygen Enriched Air),
- Personal oxygenator design for individuals,
- Analysis, modeling, and design of individual protection masks (aerosols, biological pollutants),
- Application of 3D printing technologies for masking and individual oxygenator production,
- Purification of wastewater.

Once a vaccine for the virus has been created, it will need to be scaled up and mass-produced. It is the task of chemical engineers to design a safe, efficient, and cost-effective process to produce the desired quantity of units. Most likely this will be done using software to model the production route and determine the ideal equipment to be used. After this; theoretical design reactors, pipes, etc. will be transformed into a physical design using. They will then monitor the process, perform any maintenance requirements, and make the necessary changes in the process. Pharmaceutical manufacturing has some unique challenges in terms of product safety and regulatory issues, but the basic principles are the same as chemical engineers use in a variety of other industries.

Sources:

https://www.researchgate.net/publication/342366322_COVID-19_and_the_Role_of_Chemical_EngineersAl-sharify,Zainab T.. (2020). (COVID-19) and the Role of Chemical Engineers.
https://www.frontiersin.org/research-topics/13855/chemical-engineering-response-to-covid-19-challenges#overview

BAŞARISIZLIK KORKUSU YAŞAYAN KÖPEK BALIKLARI

YAZAN:SABİHA ŞEVVAL GÖKDUMAN
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Kendi içimizdeki potansiyeli göremeyip, hiçe sayıp zaman zaman karamsarlığa düşebiliyoruz. İşte sizin için motivasyonumuzun azaldığı zamanlarda yaşadıklarımızı anlatan bir yazı!

Başarımızı örseleyen, bizi başarılı biri olmaktan alıkoyan nedir?
Ya da kimdir?
Bu sorunun cevabını içten içe hepimiz biliyor da kabul mu etmek istemiyoruz yoksa gerçekten hiçbir fikrimiz yok mu?
"Atikifobi" terimini daha önce duymuş muydunuz?

> Duymamış olma ihtimaliniz yüksek ama yaşamamış olma ihtimaliniz çok düşük çünkü atikifobinin anlamı "Başarısızlık Korkusu".

Bu terimi öğrendiğimden beri pazartesileri "bugün günlerden atikifobi" diye söylenerek yataktan çıkıyorum. Uzun süredir başarı iştahımı kaybetmiş gibi hissediyorum. Şu anda aklınızdan o kadar motivasyon yazısı yazabilecek insan varken bu yazıyı pazartesi sendromu yaşayan biri mi yazıyor diye geçiriyorsanız doğru düşünüyorsunuz demeyeceğim çünkü başarısızlık korkusunu yaşayan bilir. Tabii öğrencilerin çoğu bu korkuyla yüzleştiği için (2015'te yayımlanan bir makaleye göre Türkiye'de başarısızlık korkusu nedeniyle akademik ertelemeden mustarip öğrenci yüzdesi %54, dünyada ise %70 . Bu konuda dikilmiş kaftanı bulmak zor olamasa gerek. Şimdi sizlere kendimi başrolüne çok benzettiğim kısa bir deneyden bahsedeceğim:

> Günlerden bir gün Martin Seligman adında bir psikolog, ortasında kırılmaz cam olan akvaryumun bir tarafına aç bir köpek balığı, diğer tarafına ise köpek balığı için mükemmel bir yem olan küçük bir balık koyar. Köpek balığı beklendiği üzere camın diğer tarafındaki balığı yemeye çalışır ancak ne kadar denerse denesin her seferinde kafasını cama vurur ve bir süre sonra yapamayacağını anlayarak pes eder. Ardından aradaki cam kaldırılır ve köpek balığı izlenmeye alınır ancak köpek balığı başarısız olacağını düşündüğü için tekrar denemez.

Bu duruma öğrenilmiş çaresizlik deniliyor. Öğrenilmiş çaresizlik durumunda kişi deneme cesaretini daha önceki başarısızlıkları dolayısıyla kaybediyor bu da başarısızlık korkusunun en önemli kaynaklarından biri aslında. Peki bu başarısızlığı sürdürülebilir hale nasıl getiriyoruz? Sürdürülebilir derken toplumca sürdürülen başarısızlıktan bahsediyorum. Yani aslında siz daha denememiş olduğunuz bir işte bile başarısız olacağınızı nasıl düşünüyorsunuz? Bunun sebebi ise "Gizli Öğrenme". Bu kavramı hayatımıza psikolog Edward C. Tolman sokmuştur. Bunun anlamı ise, siz çaba sarf etmeden öğrendikleriniz. Konumuz ile bağlantısı ise okul arkadaşlarınızdan, mahalledeki tanıdıklarınızdan ya da akrabalarınızdan, kısacası çevrenizden duyduğunuz "Ben onu yaptım olmadı, olmuyor, olmayacak sen de deneme." gibi olumsuzlukların öğrenilmesi. Bu durum da aynı şekilde başarısızlık korkusunun başlıca kaynaklarından ne yazık ki.
Başarısızlık korkusuna sahip olmanın nasıl bir duygu olduğunu çoğumuzun zaman zaman tattığını biliyoruz. Peki bu duygudan kurtulup nasıl harekete geçebiliriz? Klinik psikolog Beyhan Budak'a göre bunun için birkaç önemli nokta var:

1- *Kendimiz ile yüzleşmeliyiz yani sorumluluk almalı ve hatalarımızı kabul etmeliyiz. Çevremizdekileri suçlamayı bırakıp en önemli özne olan kendimiz ile hesaplaşmalıyız.*
2- *Bu yolun uzun bir yol olduğunu unutmamalıyız. (yüz metre değil, maraton.)*
3- *Bu uzun yolda adımlarımızı küçük küçük ve yavaş yavaş atmamız gerektiğini unutmamalıyız.*
4-*Hazır olmayı beklemeyin! Şu an, şu saniye başlayın. Nasıl olsa adımlarınızı küçük küçük atacaksınız.*

Bu maddelerden kısaca bahsettikten sonra unutmayın ki başarısızlık hayatın her alanında ve anında karşımıza çıkabilir. Ondan korkmak yerine ders çıkarmak daha hayırlı olacaktır hepimiz için. Paul Brown der ki: Bir başarıdan bir satır, bir başarısızlıktan bir kitap öğrenebilirsiniz.

> Hayatın mücadele üzerine kurulu olduğunu ve bu mücadelede izlememiz gereken kolaylaştırıcı tavsiyelerin ve yolların olduğunu unutmayarak, çevremizin bize ve en önemlisi de kendi kendimize kurduğumuz psikolojik tuzaklara düşmememiz gerektiğini hatırlayarak geçireceğimiz bir ömür dileği ile başarı korkusundan uzak ve mutlu kalın.

SHARKS FEARING FAILURE

WRITTEN BY: SABİHA ŞEVVAL GÖKDUMAN
ANKARA UNIVERSITY CHEMICAL ENGINEERING 1ST YEAR STUDENT

What's slowing us down, what is the thing stopping us from being successful?
Or who?
Do we all know the answer to that question and we just don't want to accept the answer or do we truly have no idea?
Have you ever heard the term "Atychiphobia" before?

> Although it's unlikely for you to have heard of this term before it's even more unlikely that you have never experienced it. Because atychiphobia means "fear of failure."

Ever since I've heard of this term, every Monday I leave the bed saying "It's atychiphobia Monday." I feel like I haven't had a need for success for a long time. If you're thinking to yourself "out of everyone who could've written an inspirational essay why is the person that has Monday morning blues writing it" I won't say that you are right because it's something that you can't understand without living through it? Of course, considering most students live through it (According to an essay published in 2015 the people in Turkey that have suffered from academic postponement are %54 and %70 globally.) Now I would like to talk to you about a short experiment that has a lead that I really associate myself with.

> One day a psychologist named Martin Seligman puts a hungry shark on one side of the aquarium while he puts some little fishes that are perfect prey for the shark on the other side of the aquarium with an unbreakable glass separating them in the middle. As expected, the shark tries to eat the fish, but no matter how many times it tries it just hits its head on the glass and after a while understands that it can't get through and gives up. After some time, the glass gets removed but the shark, thinking that it will fail again, doesn't try again.

This behavior is called learned helplessness. In the case of learned helplessness, the person loses their will to try again because of their previous failures. But how do we prolong this feeling of helplessness? And I mean the helplessness that is prolonged by society. Why do we think that we will be unsuccessful in something that we haven't even tried yet? This phenomenon is called "latent learning". Psychologist Edward C. Tolman came up with this term. And it entails the things you learn without meaning to or putting in the effort. This phenomenon ties into our subject through your friends from school, your family, the people you know saying "Oh I've tried that, that doesn't work, you shouldn't try it either" and you listening to them and learning from them. This situation also causes you to be afraid of failure sadly.

We all know how it feels to fear failure. But what can we do to escape this feeling and take action? According to clinical psychologist Beyhan Budak, there are a few key points:

1. *We should face ourselves. Meaning we should take responsibility and accept our mistakes. We should stop blaming others around us and focus on the most important person, ourselves.*
2. *We shouldn't forget that it's a long path. (It's not a 100-meter run, it's a marathon.)*
3. *We should also remember to take small and slow steps on this long road.*
4. *Don't wait until you are ready! Start now, you're going to be taking small steps anyway.*

After taking a look into these points don't forget that failure can come up in every aspect of life and at any time. Instead of being afraid of it, we should embrace the fact that it is inevitable and just learn from our mistakes. Paul
Brown says: "You can learn a line through a win, and a book from a defeat."

> Keeping in mind that life is a struggle and that there are things that could help us get through it easier, and not falling for the traps set for us by society or most importantly by ourselves, I wish you all a great life far from the fear of failure.

DEPREM

YAZAN: MEHMET SATIR
ANKARA ÜNİVERSİTESİ KİMYA MÜHENDİSLİĞİ LİSANS 1.SINIF ÖĞRENCİSİ
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&ABDELFETTAH ERBAİ
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DEPREM DOĞAL AFET MİDİR?

Depremler birçok insanı yaralayabilir ve çevreye kalıcı zararlar verebilir. Güçlü bir deprem binlerce insanı etkileyebilir ve hatta ölümcül olabilir. Tüm depremlerin doğal afet olduğunu düşünüyoruz. Peki bu tamamen doğru mu?

Hayır, depremlerin tamamı doğal afet değildir. Biz insanlar da depreme neden olabiliriz ama nasıl?

İNSAN FAKTÖRÜNÜN DEPREMLER ÜZERİNDEKİ ETKİSİ

Amerika Birleşik Devletleri'nin orta ve doğusundaki depremler, insan faaliyetlerinin bir sonucu olarak son on yılda önemli ölçüde artmıştır. Susuzlaştırma, hidrolik kırma veya çatlatma gibi gelişmiş petrol geri kazanım teknikleri, daha önce yeraltında hapsolmuş büyük miktarlarda petrol ve gazı erişilebilir hale getirdi. Ancak çoğu zaman bir yan ürün olarak kirli atık su açığa çıkmasıyla sonuçlandı. Bu işlemin neden olduğu atık su miktarı binlerce deprem oluşturabilir. **Bir varil petrol, 10 varil atık su üretir.**

Bu miktardaki atık su bir yere gitmeli. Şirketler çok derin kuyular kazıyor ve atıklarını yerin altına bırakıyor. Kuyu bir fay hattına yakınsa, atık suyu boşaltmanın saf kuvveti onu zemini ve bu da fay hattının kaymasına, toprağın sallanmasına neden olur.

DEPREMLERDE KİMYA MÜHENDİSLERİNİN ROLÜ

Araştırmacılar, insan kaynaklı depremlere neden olan kırılmayı da içeren petrol ve gaz çıkarma süreçlerinin bir yan ürünü olarak yeraltının derinliklerine atık su enjekte edildiğini söylüyor. Kayadan petrol ve gazı çıkarma tekniği; atık su üreten yüksek basınçlı su, kum, çakıl ve kimyasalların karışımını kullanır. Bu atık su, ABD genelinde depremlerde artışa neden olan yeraltı enjeksiyonları yoluyla bertaraf edilmektedir.

Yapılan bir çalışma; ekibin yeraltındaki basıncın nasıl arttığını tahmin edebildiğini gösteriyor, bu da atık su enjeksiyonlarındaki birikmenin kritik hale gelmeden **durdurulması için bir şans sağlıyor.**
“Thechemicalengineer.com” 'a bilgi veren kimya mühendisleri, bu enjeksiyonun her zaman olmamakla birlikte depreme neden olabileceğini açıkladığını söylüyor.

ÇÖZÜM

Bu araştırma, atık su bertaraf kuyularının deprem tehlikelerini azaltabilecek şekilde işletilmesi için yeni olanaklar sunmaktadır. Şu anda ABD'de - özellikle TEXAS, California, Oklahoma ve Kansas'ta - yeraltına toplamda yaklaşık 9 milyar L/ gün (ölümcül doz) atık su enjekte eden 180.000 boşaltma kuyusu bulunmaktadır. Araştırma ekibi, filtreleme ve bertaraf için alternatif yollar buluyor. Ekip, bir sonraki araştırma adımının; enjeksiyon sonucu yakındaki faylarda zamana bağlı deprem olasılığını hesaplamak için toplanan verileri bir deprem tahmin modelinde kullanmak olacağını ekledi.

TÜRKİYE'DE DEPREM İHMALLERİ

Ülkemizde bu nedenli depremlere pek rastlamıyoruz. Fakat daha acı bir gerçek var ki şiddeti diğer ülkelerden az olan depremlerde bile yüksek can kayıpları yaşıyoruz. Peki neden?

Nedenleri ise gayet açık; denetimsizlik, yapı malzemesinde yapılan ihmal ve daha nice sebep...

Deprem öncesi denetimsizliğin yanında sonradan oluşabilecek kimyasal kaynaklı sorunlar da ülkemizde gündem olamamış bir sorun. Türkiye'nin yoğun sanayileşmiş Kocaeli bölgesinin 17 Ağustos 1999 depreminden sonraki deneyimi gözden geçirilmiş olup on dokuz endüstriyel tesis incelenmiştir. Araştırılan tehlikeli madde salınımlarının daha yıkıcı örneklerinden bazıları şunları içerir: bir gübre fabrikasında 200.000 kg tehlikeli susuz amonyağın salınması; bir kimya şirketinde 6.5 milyon kg toksik akrilonitrilin parçalanmış tanklardan havaya, toprağa ve suya sızması; ham petrol ünitesi ve nafta tankı çiftliğindeki büyük yangınlar ve bir petrol rafinerisindeki liman terminalinde sıvı petrol gazı sızıntıları ve petrol sızıntıları.

Bu araştırma; ortak deprem-teknolojik felaketlerin, tipik olarak büyük bir depremi takip eden koşulları özel olarak içeren kimyasal salımın **acil müdahale planları oluşturarak hafifletilebileceğini** göstermektedir. Bu planlar: su, elektrik ve kilit müdahale personelinin varlığı, deprem kuvvetlerine dayanabilecek kimyasal salınım azaltma sistemlerinin tasarımı; vatandaşların yüksek riskli alanlarda yaşamasını önlemek için arazi kullanım planlaması ve tehlikeli maddeler içeren tank ve boruların depreme dayanıklı tasarımı ve yapımını kapsar.

Tüm bu önlemler alınarak tehlikeler azaltılabilecekken insanlar neden hala hayatını kaybediyor?

#AfetdeğilCinayet

Ve biliyoruz ki *"Sorun Deprem Değil, Denetimsizlik, Bilim ve Teknik Dışı Anlayıştır."*

DEPREM DEĞİL İHMAL ÖLDÜRÜR!

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EARTHQUAKES

Are Earthquakes Natural Disasters?

Earthquakes might hurt lots of people and make permanent damages to the environment. A powerful earthquake can affect thousands of people and even it might be fatal. We know that all earthquakes are natural disasters. But is it actually true?

No, not all of the earthquakes are natural disasters. We, as human beings, might cause earthquakes, but how do we do it?

Human Impact on Earthquakes

Earthquakes in the central and eastern United States have increased dramatically in the last decade as a result of human activities. Enhanced oil recovery techniques, including dewatering and hydraulic fracturing, or fracking, have made accessible large quantities of oil and gas previously trapped underground, but often result in a glut of contaminated wastewater as a byproduct. The amount of wastewater disposal this process makes can create thousands of earthquakes. One barrel of oil produces 10 barrels of wastewater.

This amount of wastewater has to go some- where. Companies dig very deep wells and dump their waste down there. If the well is close to a fault line, the sheer force of the dumping can loosen it up and this causes to fault line to slip and to ground to shake.

The Role of Chemical Engineers in Earthquakes

Researchers say injecting wastewater deep underground as a byproduct of oil and gas extraction processes, which include fracking causes human-made earthquakes.

The technique to extract oil and gas from rock uses a high-pressure mix of water, sand or gravel, and chemicals, which produce wastewater. This wastewater is disposed of through underground injections that have led to an increase in the earth-quakes across the US.

The study shows that the team can estimate how pressure increases underground, which provides a chance for waste-water injections to be halted before the buildup becomes critical. The chemical engineers from “thechemicalengineer.com” say this helps to explain why injection can but does not always, cause earthquakes.

The Solution

This research opens new possibilities for the operation of wastewater disposal wells in ways that could reduce earthquake hazards. There are currently 180,000 disposal wells in the US – primarily in TEXAS, California, Oklahoma, and Kansas – injecting a total of around 9bn l/d (lethal dose) of wastewater underground. The team is finding alternative ways for filtration and disposal. The team added that the next research step will be to use the collected data in an earthquake-forecasting model to calculate the time-dependent probability of earthquakes on nearby faults as a result of the injection.

Eartquake Neglections in Turkey

We are not encountering earthquakes like this in Turkey. But the sad truth is that earthquakes that occur in Turkey, kills a lot of people even if it is not powerful. But why? The reason is pretty simple: unsupervised constructions. Earthquakes that happen because of chemical resourced problems are not showed in the media. The experience by the heavily industrialized Kocaeli region in Turkey after the August 17, 1999 earth- quake has been reviewed and nineteen industrial facilities have been examined.

Here are some of the devastating examples of lethal matter oscillation: 200.000 kg of dangerous dehydrated ammoniac was found in a fertilizer plant. 6.5 million kg of toxic acrylonitrile was released into the air, land, and water in a chemistry factory and so many examples like this.

This research indicates that common earthquake-technologic disasters can be mitigated by creating chemical release emergency response plans specifically involving conditions that typically follow a large earthquake. Such plans include the presence of water, electricity, and key response personnel, and the design of chemical release reduction systems that can withstand earthquake intensity. Land use planning and earthquake-resistant design and construction of tanks and pipes containing hazar-dous materials are there to prevent citizens from living in high-risk areas. Why are we still losing our lives while the dangers can be reduced by taking all these measures?

And we know that "Problem is not the Earthquake, but the Lack of Supervision, Non-Scientific and Non-Technical Understanding."

#MurderNotDisaster

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İNSAN YAŞAMINI KORUMAK; DOĞU-BATI BULUŞMASI

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SONUNDA!

Neredeyse bir yıl süren trajedi ve hastalığın ardından, umuyoruz ki pandemi bitmek üzere. Aşıların üretimi tamamlanmak üzere. Bilim insanları, COVID-19 aşısının 3.aşama denemesinin pozitif ara sonuçlarını dikkatli bir iyimserlikle ilan eden basın açıklamasını yayınladılar.

Küresel bir biyoteknoloji şirketi "BioNTech" ve farmasötik alanının devi "PFIZER", faz 3 çalışmalarının ilk ara analizinde başarıya ulaşan COVID-19 aşısını duyurdular. Almanya ve ABD'de ortak olarak geliştirilen aşı, insan hücrelerinin bağışıklık sisteminin bu tür virüsler için kilit hedefi olan koronavirüs başak proteinini yapmasına yönelik haberci RNA formundaki moleküler talimatlardan oluşuyor.

Pfizer Başkanı ve CEO'su, Dr. Albert Bourla şöyle belirtti: "Aşılanan kişiler ile sahte tedavi gören kişiler arasındaki vaka farkı, ikinci dozdan 7 gün sonra % 90'ın üzerinde bir aşı etkililik oranı ile görülmektedir. Bu, güvencenin, 2 dozluk bir programı içeren aşılamanın başlamasından 28 gün sonra gerçekleştirildiğini gösterir. Araştırma ilerledikçe, son aşının etkililik oranı değişkenlik gösterebilir. VİK (Veri İzleme Komitesi), önemli bir güvenlik açığı olmadığını açıkladı ve çalışmanın planlandığı gibi ek güvenlik ve etkinlik verileri toplamaya devam edeceğini öngördüğünü belirtti. Veriler, dünyanın dört bir yanındaki
düzenleyici uzmanlarla tartışılacak".

Ocak ayında Çin'in Wuhan kentindeki koronavirüs hakkında bilimsel bir makale okuduktan sonra, "BioNTech'in Türk-Alman kurucusu" Uğur Şahin, kötü huylu mRNA ilaçlarından mRNA bazlı viral antikorlara doğru "küçük bir adım" attı. Bir Mesajcı RNA'yı (mRNA) açıklamak için, bir genin DNA zincirlerinden birine karşılık gelen, yalnız terk edilmiş bir RNA parçacığıdır diyebiliriz. mRNA, hücre çekirdeğini terk eden ve proteinlerin yapıldığı sitoplazmaya hareket eden genin bir RNA adaptasyonudur. BioNTech, Mart ayında Pfizer ile ortaklığını bitirerek, 500 personelini içinde birkaç potansiyel mRNA bileşiği bulunan girişimi denemesi için atadı. COVID-19 aşı yaklaşımları, hücreleri virüsün parçalarına benzeyen protein parçaları oluşturmaları için kandırmak ve bunun için genetik materyal olarak mRNA'yı kullanmak yönünde. Bağışıklık sistemi, bu parçaları nasıl algılayacağını ve onlara nasıl saldıracağını çözer ve teoriye göre olası bir gerçek enfeksiyona hızla yanıt verir.

Mevcut tahminlerin ışığında, aşının tüm dünyada 2020'de 50 milyona kadar antikor dozuna ve 2021'de 1,3 milyar doza kadar çıkacağını umuyoruz. Pfizer ve BioNTech, bilimsel hakem değerlendirmesi yayını için bütün Aşama 3 denemesinin verilerini sunmayı planlıyor. Araştırmacıların Pfizer'in aşılamalarının arkasındaki ilk verileri görmeleri gerekse de, aşıyı öngörerek kabul etmeye hazırlar çünkü insanlığın biraz da olsa normale dönmesi için ihtiyaç duyduğu şey bu. Bakalım bilim insanları tarafından yapılan bu bilimsel ilerleme insanlığı bu korkunç salgından kurtaracak mı?

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Saving Human's Lives

The East Meets The West

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FINALLY!

After almost a year of tragedy and sickness, the pandemic is about to end. The production of the vaccines is right around the corner. Scientists have greeted with attentive confidence a public statement proclaiming positive break results from a COVID-19 vaccine phase III trial; the first to give an account of the last round of human testing.

A global biotechnology company "BioNTech" and a pharmaceutical giant "PFIZER" just announced a vaccine candidate against COVID-19 which achieved success in the first interim analysis from phase 3 study. The vaccine, which is being co-developed in Germany and the US, consists of molecular instructions in the form of messenger RNA for human cells to make the coronavirus spike protein, the immune system's key target for this type of virus.

The case split between vaccinated people and the individuals who got the fake treatment demonstrates a vaccine efficacy rate above 90%, 7 days after the second dose. This implies that assurance is accomplished 28 days after the initiation of the vaccination, which comprises of a 2-dose schedule. As the examination proceeds, the last vaccine efficacy rate may fluctuate. The DMC (data monitoring committee) has not announced any genuine security concerns and prescribes that the study keeps on gathering additional safety and efficacy data as arranged. The data will be discussed with regulatory specialists around the world." said Dr. Albert Bourla, Pfizer Chairman and CEO.

In January, after reading a scientific paper about the coronavirus in Wuhan, China, Ugur Sahin "The Turkish-German founder of BioNTech" was taken by the "little step" from hostile to malignant growth mRNA medications to mRNA-based viral antibodies. Just to explain a Messenger RNA (mRNA) is a solitary abandoned RNA particle that is reciprocal to one of the DNA strands of a gene. The mRNA is an RNA adaptation of the gene that leaves the cell core and moves to the cytoplasm where proteins are made. BioNTech appointed 500 of its staff to take a shot at the venture with a few potential mRNA compounds, in the end closing a partnership with Pfizer in March. Their Covid-19 vaccine approach utilizes genetic material, mRNA, to trick cells into creating pieces of protein that resemble bits of the virus.

In light of current projections, we anticipate that the vaccine should be all around the world up to 50 million antibody dosages in 2020 and up to 1.3 billion doses in 2021. Pfizer and BioNTech plan to submit data from the full Phase 3 trial for scientific peer-review publication. Even though researchers need to see the data behind Pfizer's immunization preliminary, they are ready to acknowledge the vaccine with provision because that's what humanity needs to get half-way back to normal at least. Let's see if this scientific advancement made by a couple of scientists will save humanity from this horrific pandemic.

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AKILLI MALZEMELERE BİR BAKIŞ & AN OVERVIEW OF SMART MATERIALS

YAZAN:BERRU GELÇETİN
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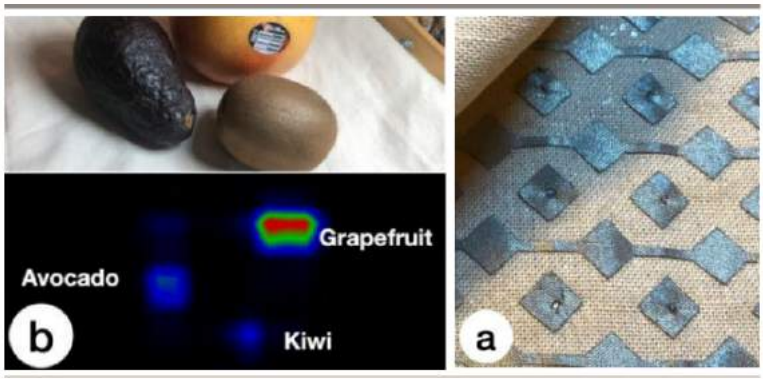
NESNELERİ ALGILAYABİLEN KUMAŞ CAPACİTİVO

Microsoft ve Xing-Dong Yang nesneleri algılayabilen, Capacitivo adını verdikleri akıllı kumaş hakkında bir makale yayımladı. Bu günlük hayatımızda kullandığımız metal olmayan nesneleri algılayabiliyor. Elektron ızgarası şeklinde tasarlanmış bu iletken kumaş bir nesne ile etkileşime girdiğinde maddedeki elektron değişimleri sayesinde nesneyi tanımlayabiliyor. Örneğin bir bitkinin kuru veya sulanmış olduğunu söyleyebiliyor; bardağın boş olduğunu ya da içerisinde su mu, kola mı olduğunu algılayabiliyor. Denenen üç farklı meyveyi ayırt edebiliyor.

CAPACITIVO: FABRICS USING CAPACITIVE SENSING

Microsoft and Xing-Dong Yang have generated a fabric that can detect objects. The fabric is called Capacitivo. This fabric, which is different from the previous works, can recognize non-metal objects that we use in our daily lives. The conductive fabric designed as electron grid can realize the object through electron changes when interacting with the substance. For example; it can say whether a plant is watered or not or if a glass is empty, full of coke or water. It can differentiate 3 different fruits that put on the fabric.



youtube link

Sistemin hassaslığını ölçmek için yapılan bir deney ise düzenek A marka bir peynir ile kalibre edildikten sonra B marka peynirle test ediliyor ve düzenek ikisinin de peynir olduğunu anlayabiliyor. Bu testten düzeneğin küçük içerik farklarında yanılmadığını anlıyoruz. Farklı şekillerden ve boyutlardan ofiste, mutfakta gördüğümüz 20 nesne ile yapılan deneylerden %94,5 doğruluk oranı alıyorlar. Böyle bir teknolojiyi makine öğrenmesini de kullanarak birçok alana uyarlayabiliriz. Örneğin; dolabınızda olan malzemelere göre size yemek tarifi önerebilir, kaybettiğiniz eşyanızın yerini söyleyebilir, çiçeğinizi ne zaman sulamanız gerektiğini hatırlatabilir. Özellikle görme engellilerin hayatını kolaylaştıracak uygulamalar Capacitivo kumaş teknolojisi sayesinde geliştirilebilir. Xing-Dong Yang bu sayede bilgisayarlar ile etkileşim yöntemlerimizin değişeceğini söylüyor.

In addition, when an experiment that tests sensitivity is conducted, it is observed that when the fabric is calibrated with a food that's produced by brand A it can recognize the same food even when it is produced by brand B. They tested the prototype using 20 everyday objects, ranging from food to personal items and things that are commonly seen in kitchens and offices. As a result, they achieved a 94.5% accuracy rate in these tests. We can adapt such technology to many areas using machine learning. For instance, it can suggest you recipes according to the ingredients in your refrigerator, tell you where your lost items are, and remind you when to water your flower. Especially applications that will make life easier for visually impaired people can be developed thanks to Capacitivo fabric technology. Xing-Dong Yang states that this will change the way we interact with computers.

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TÜRKİYE'DE TABİİ KAYNAKLAR

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Yakın Türkiye tarihinde tabii kaynaklarımızın kullanımının gelişimini mercek altına aldık.

Tabii kaynakların yaşadığımız topraklardaki gelişimi Batılılaşma Hareketi ile başlamıştır. Osmanlı Devleti'nde Batılılaşma adımları 1839 tarihli Tanzimat Fermanı ile başlamış ve bu süreci 1. Meşrutiyet, 2. Meşrutiyet ve Cumhuriyetin ilanı takip etmiştir. Batılılaşmanın ve sanayileşmenin önemi, Mustafa Kemal'in Birinci Dünya Savaşı sonrası alınan mağlubiyet için sanayi alanında gelişmiş ülkeler ile tarımsal alanda bile gelişimini tamamlayamamış bir ülkenin mücadele edemeyeceğini belirtmesi ile vurgulamıştır. Osmanlı Devleti; ordunun silah, cephane, sikke ihtiyacını kendi madenlerimizden sağlamıştır. 19. yy'da Batı sermayesine maalesef topraklar açılmaya başlanmış ve bu dönemde Batılılar tarafından ocaklar açılmış, üretime başlanmıştır. Zonguldak Maden Kömürü Havzası'nda İngiliz, Fransız, Alman ve İtalyanlar hakimiyet sağlamıştır. Türkiye Cumhuriyeti kurulduktan sonra Havza'nın ulusal çıkarlara hizmet etmesine önem verilmiştir. 1930'lu yıllara kadar ülkenin sahip olduğu maden hazinesinin tespit çalışmaları yapılmamış ve bu durumun iyileştirilmesi adına Maden Tetkik ve Arama Enstitüsü (MTA) kurulmuştur. Aynı zamanda ETİBANK kurulmuş ve MTA'nın araştırma sonuçlarına göre bölgelerde işletme kurup üretim sağlanması amaçlanmıştır.

BOR, DEMİR ve ALTIN'DA NEREDEN, NEREYE?

Bor: Bor madeni son yüzyılda fazlasıyla çıkartılıp kullanılmaya başlanmıştır. Çıkarılması ve işlenmesi üzerine topraklarımızda ilk tesis 1815 yılında Balıkesir - Susurluk ilçesinde kurulmuştur. 1865-1917 yılları arasında İngilizlere ait Borax Consolidated Ltd. Şirketi tarafından kullanılmıştır. Osmanlı Devleti dönemi'nde bor madeninin rezervleri yabancı ülkeler tarafından fark edilmiştir. Zamanla ülke rezervlerini kullanabilmek için ruhsat alıp üretime başlamışlardır. Aynı politika topraklarımızda bulunan diğer madenler içinde gerçekleştirilmiş ve zamanla yabancılar tarafından çıkarılan ve işlenmesi sağlanan birçok maden ocağı kurulmuştur. Şu an da Türkiye'de yaygın olarak çıkarılan bor madeni kimya, malzeme, tarım, inşaat, nükleer enerji, savunma sanayi, temizlik, sağlık sektöründe kullanılmaktadır. Türkiye, bor madeni açısından oldukça zengin bir duruma geldiğinden ihracat yapan ülkeler arasında üst sıralarda yer almaktadır. Ülkemizin bilinen bor madeni rezervleri Eskişehir-Kırka, Kütahya-Emet, Bursa-Kestelek ve Balıkesir-Bigadiç ilçelerinde bulunmaktadır. Eti Maden; bor rezervi ve işleme işlemlerinde ülkenin öncülerinden olmuş ve temizlik malzemesi üretiminde yol katetmiştir.

Demir: Sanayileşmenin ilerlemesi hedefi için demir-çelik üretiminde artma amaçlanmıştır. Bu amaç doğrultusunda 1939 yılında Karabük Demir Çelik Fabrikası üretime geçirilmiştir. Fabrikanın hammadde ihtiyacı Divriği A Kafa Demir Yatağı'ndan sağlanmıştır. Divriği A Kafa Demir Yatağı şu an hala işletilmekte ve Türkiye'nin demir ihtiyacının %30'unu kendi rezervlerinden karşılamaktadır. Türkiye'de İsdemir, Erdemir, Kardemir fabrikaları çelik üretimi için hammadde ihtiyacını kendi çıkardığımız demir cevherinden almaktadır. Sivas, Malatya, Bingöl, Adana ve Kayseri demir rezervinin yoğunlaştığı bölgelerdir. Türkiye bu dönemde 10 milyon ton/yıl demir cevheri tüketmekte ve %50 ihtiyacını ithal etmektedir.

Altın: Doğada serbest halde bulunan ve kolay işlenebilen altın, ticari açıdan büyük kolaylık sağlamaktadır. Ülkemizde altın üretimi ilk olarak 2001 yılında İzmir-Bergama'da Ovacık altın madeninde başlamıştır. Günümüze kadar gerçekleştirilen altın projelerine yerli ve yabancı yatırımcılar, arama ve tesis yatırımlarına yaklaşık 2,5 milyar $ harcamıştır. Ülke sınırları içerisinde çıkarılan altın madeni ham ürün olarak çıkarılıp ve İstanbul Borsası'na teslim edilmektedir. Altın ihtiyacının tamamı üretimimizden karşılanamadığından önemli ölçüde ihlalat yapılmaktadır.

Bugün Türkiye:
Madencilik, tarım ile birlikte ülkelerin hammadde ihtiyacını karşılayan işi büyük alandır. Dünyada 90 çeşit ticareti yapılan maden bulunmakta ve 70'in üstünde madene Türkiye'de rastlanmaktadır. Ancak rastlanan bu madenlerden 50'si için zengin kaynak olarak bakılmaktadır. Bazı öncü madenler dışında, bor madeninde dünya lideri olmamızın yanı sıra, madencilikte istenilen seviyeye ulaşılamadığı görülmektedir. Türkiye için çıkarılan ve işlenen madenler için maden kaynaklarından yeteri kadar yararlanılmadığı ve ülkemizde yabancı yatırımcı ve işletmecilerin bulunduğu söylenilmektedir.

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NATURAL SOURCES IN TURKEY

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WE PUT THE DEVELOPMENT OF THE USE OF NATURAL RESOURCES IN THE LATE HİSTORY OF TURKEY UNDER THE SPOTLİGHT.

The development of natural resources in the lands we live in started with the Westernization Movement. The Westernization steps in the Ottoman Empire started with the Reform Edict dated 1839 and this process was followed by the 1st Constitutional Monarchy, the 2nd Constitutional Monarchy, and the declaration of the Republic. The importance of westernization and industrialization was emphasized by Mustafa Kemal's statement that a country with advancements in their industry but could not complete its development in the agricultural field won't be able to fight after the defeat of the First World War. Ottoman Empire provided the army's need for weapons, ammunition, and coins from our mines. In the 19th century, unfortunately, lands started to be opened to the Western capital and in this period, quarries were opened by the Westerners and production started. British, French, German, and Italians dominated the Zonguldak Mine Coal Basin. After the establishment of the Republic of Turkey importance is given to the basin to serve national interests. Until the 1930s, studies of determining the mine treasury of the country were not carried out and the Mineral Research and Exploration Institute (MRE) was established to improve this situation. At the same time, ETİBANK was established and according to the research results of MRE, it was aimed to establish a business in the regions and to provide production.

TIMELINE of BORON, IRON and GOLD

Boron: Boron mine has been extracted and used extensively in the last century. The first facility in our land upon extraction and processing was established in 1815 in Balıkesir - Susurluk district. It was used by the British company Borax Consolidated Ltd. between 1865-1917. During the Ottoman period, the reserves of the boron mine were noticed by foreign countries. In time, they got a license and started production to use the country's reserves. The same policy was carried out for other mines in our lands, and many mines were established over time, which were extracted and processed by foreigners. Currently, the commonly mined boron in Turkey is used in chemistry, materials, agriculture, construction, nuclear energy, defense industry, cleaning, and health sector. Turkey, located at the top among the countries that export it came to a rich state in terms of boron. Our country's well-known boron mine reserves are located in Eskişehir-Kırka, Kütahya-Emet, Bursa-Kestelek, and Balıkesir-Bigadiç districts. Eti Maden has been one of the pioneers of the country in boron reserve and processing operations and has come a long way in the production of cleaning materials.

Iron: With the aim of advancing industrialization, an increase in iron and steel production is aimed. For this purpose, the Karabük Iron and Steel Factory was put into production in 1939. The raw material required for the factory was provided from Divriği A Kafa Iron Deposit. Divriği A Kafa Iron Deposit is currently still in operation and 30% of Turkey's iron needs are provided from its own reserves. In Turkey; İsdemir, Erdemir, and Kardemir factories get their raw material needs for steel production from iron ore that we extract. Sivas, Malatya, Bingöl, Adana, and Kayseri are regions where iron reserves are concentrated. In this period, Turkey consumes 10 million tons/year of iron ore and imports 50% of its needs.

Gold: Gold, which is available in nature and can be processed easily, provides great convenience in commercial terms. Gold production in our country first started in 2001 in İzmir-Bergama Ovacık gold mine. Domestic and foreign investors have spent approximately $ 2.5 billion on exploration and facility investments on gold projects undertaken until today. The gold mine extracted within the borders of the country is extracted as a raw product and delivered to the Istanbul Stock Exchange. Since all of the gold needed cannot be met from our production, significant violations are made.

Today's Turkey:
Mining, together with agriculture, is a big business that meets the raw material needs of countries. There are 90 kinds of mineral trade in the world and more than 70 mines have been found in Turkey. However, 50 of these mines are regarded as rich resources. Apart from being the world leader in boron mine, it is seen that the desired level cannot be reached in mining.

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HAK ETTİĞİ ÜNE KAVUŞAMAMIŞ KESKİN ZEKA: HUMPHRY DAVY

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Yer kabuğu, taş küre veya litosfer, Yerküremizin en dış kısmında bulunan yapıdır. Yer kabuğundaki maddeler de elementler bileşikler, alaşımlar ve karışımlardan oluşur. Peki ya siz yer kabuğundaki maddeleri ele aldığımızda en çok rastlayacağımız elementleri hiç düşündünüz mü? Bu konuda yapılan birçok çalışma olmasına rağmen en geçerli kabul edilenler Davıd Darlıng ve İsrail Bilim & Teknoloji Merkezinin yaptığı çalışmalardır. Her iki çalışma da yakın sonuçlar vermektedir. Peki bu elementler neler?

1. Oksijen (O) (%46,6)
2. Silisyum (Si) (%27,7)
3. Alüminyum (Al) (%8,13)
4. Demir (Fe)(%5,0)
5. Kalsiyum (Ca)(%3,6)
6. Sodyum (Na)(%2,8)
7. Potasyum (K)(%2,59)
8. Magnezyum (Mg)(2,09)
9. Titanyum (Ti)(%0,44)
10. Hidrojen (H)(%0,14)

Bu listedeki elementlerin yapısını, tarihçesini ve keşfini incelediğimizde karşımıza çok sık çıkacak isim ise HUMPHRY DAVY'dir. Şimdi potasyum, sodyum, kalsiyum, baryum ve birçok elementin keşfinde büyük payı olan bu bilim insanını biraz yakından tanımak istemez misiniz?

Sir Humphry Davy, 17 Aralık 1778 yılında Penzance/İngiltere'de doğdu. Davy, Cornwall Ludgvan'da bir mülk sahibi olan orta sınıf ebeveynlerin en büyük oğluydu. Bazı kilise belgelerinde 1635 yılına kadar gidilip babasının ve büyükbabasının hatırı sayılır bir inşaat mühendisi olduğu görülüyor ve daha geçmişe ulaşılamıyor.
Davy erkek kardeşi John'un dediğine göre sık sık kitap okur, eskiz yapar, balık avlar, şiir yazar ve merak ettiği şeyleri karikatürize ederdi. Diğer bir ilgi alanı ise havai fişeklerdi. Yazar John Ayrton Paris **"The Life of Sir Humphry Davy"** kitabında havai fişek ve patlayıcı yapmaya çalışıp bunlar hakkında yazılar yazıp hatta gök gürültüsü tozu adını verdiğini belirtiyor. Coşkulu, sevecen ve popüler bir delikanlı olan Davy hızlı bir zekaya ve canlı bir hayal gücüne sahipti. Küçük yaşlarda okuma hızı ve hafızasının seviyesiyle annesini sık sık şaşırtırdı.
Eğitim hayatı altı yaşında, Penzance'deki gramer okuluna gönderilmesiyle başladı ve 1793'te Truro'da eğitimine devam etti. Davy, okul günlerinde annesine yazdığı bir mektupta şöyle söylüyor: **"Doğal olarak öğrenmek gerçek bir zevktir; o halde çoğu okulda acıya dönüşmesi ne kadar talihsizdir."**

1795'te babası Robert'ın ölümünden bir yıl sonra, bir cerrah ve eczacı olan John Borlase'ye çıraklık yapan Davy sonunda tıpta kalifiye olmayı umuyordu ama ameliyatta ilaç hazırlamak yerine artık kimyasal operasyonlarına sahne olan deneyler yapıyordu. Birden fazla kez, doktoru ve tüm cam şişelerini tehlikeye atan patlamalar ürettiği söylenir. Fakat yine de kendi çalışma planlarını sürdürmeye devam etti. Aklı bir süredir de felsefi uğraşlarla doluydu. Daha sonra mizacının tüm şevkiyle başladığı araştırmaya, kimyaya döndü. Pigmentler olarak çeşitli karışımları keşfetme arzusuna kapıldı. Çizimlerine yeni ve canlı bir renk zenginliği katmak için yeni kombinasyonlar arayışına girmiş olsa da, her yeniliği şevkle takip etmek ve kaydedilenler yerine kendi doğal güçleriyle sonuçlara ulaşmak onun aklının karakteriydi. Davy, ciddi bilim çalışmalarına 1797'de başladı. Davy'nin konuşmaları Davies Gilbert'ın dikkatini çekmiş, Gilbert ona Tradea'daki kütüphanesini kullanmasını teklif etmiş ve onu o gün için iyi donanımlı bir kimya laboratuarı olan evine götürmüştür. Davy orada ısı, ışık ve elektriğin doğası ve Antoine Lavoisier'in kimyasal ve fiziksel doktrinleri gibi konular hakkında son derece bağımsız görüşler oluşturdu. Sonrasında birkaç arkadaşıyla Neptünist hipotezlerinin rakip değerleri üzerine jeolojik bir tartışmaya girdiler. Davies Gilbert eşliğinde seyahat ettiler ve Davy'yi Beddoes ile tanıştırdılar. Bristol'da bir "Pnömatik Enstitüsü" kuran Beddoes, laboratuvarı yönetmek için bir asistana ihtiyaç duyuyordu. Gilbert, Davy'yi tavsiye etti. 2 Ekim 1798'de Davy, Bristol'daki **Pnömatik Enstitüsü**ne katıldı . Burası Sahte hava ve gazların tıbbi güçlerini araştırmak için kurulmuştu ve Davy, çeşitli deneyleri yönetecekti ve doktorluk mesleğini bırakma niyetinde değildi. Edinburgh'da okumaya ve mezun olmaya kararlıydı ancak kısa süre sonra kurumun bazı kısımlarını voltaik pillerle doldurmaya başladı.

Gilbert'in tavsiyesi üzerine, Clifton'da çeşitli gazların olası terapötik kullanımlarını araştırmak için kurulan Pnömatik Enstitüsüne kimya şefi olarak atandı. Davy, probleme karakteristik bir coşkuyla saldırdı ve deneysel sorgulama için olağanüstü bir yetenek olduğunu gösterdi. Küçük özel laboratuvarında hazırladığı ve nitröz oksitin (gülme gazı) "bulaşma ilkesi" olduğu, yani hastalıklara neden olduğu iddiasını test etmek için Nitrojen oksitleri ve asitlerinin yanı sıra amonyağın bileşimini araştırdı, bilim ve edebi arkadaşlarını nitröz oksidi solumanın etkilerini bildirmeye ikna etti. Hepsi de Davy'nin bağımlı hale geldiği nitröz oksitin düzenli kullanıcıları haline geldi. Gaz, Davy'nin arkadaşları ve tanıdıkları arasında popülerdi ve cerrahi operasyonlar için faydalı olabileceğini belirtti. Bu gaz deneylerinde Davy önemli riskler aldı. "Azotun gaz halindeki oksidi saf olduğunda mükemmel şekilde solunabilir. Asla zararlı değildir, ancak nitröz gaz içerdiğinde zehirler. Onu saflaştırmanın bir yolunu buldum." dedi. Yaklaşık yedi dakika boyunca on altı litreyi soluduğunu ve kesinlikle sarhoş ettiğini söyledi. Davy, 1799'da yaptığı deneylerden dolayı giderek daha fazla tanınmaya başladı. Londra'da yeni kurulan Büyük Britanya Kraliyet Enstitüsünde ders vermeye davet edildi.

Sir Benjamin Thompson , Sir Joseph Banks ve kimyager ve fizikçi Henry Cavendish'in araştırmalarını ilerletmek için elektrik pilleri üzerine özenle hazırladığı ve prova ettiği dersleri hızla önemli, sosyal işlevler haline geldi. 25 Nisan 1801'de Davy, nispeten yeni olan '**Galvanizm**' konusundaki ilk konferansını verdi.

Humphry Davy, Enstitüde o zamanlar dünyanın en güçlü elektrik piline sahipti. Bununla Davy, elektrik akımını ince bir platin şeritten geçirerek ilk akkor ışığı yarattı, çünkü metal son derece yüksek bir erime noktasına sahipti. Ne yeterince parlak ne de pratik kullanım için yeterince uzun ömürlü değildi, ancak prensibi gösteriyordu. Davy'nin Galvanizm üzerine ders dizisi sona erdiğinde, **Tarım Kimyası** üzerine yeni bir diziye ilerledi ve popülaritesi hızla artmaya devam etti.

Davy, ortak bileşikleri ayırmak ve böylece birçok yeni element hazırlamak için voltaik yığını kullanan elektroliz alanında bir öncüydü. Erimiş tuzları elektrolize etmeye devam etti ve sodyum ve potasyum da dahil olmak üzere, alkali metaller olarak bilinen oldukça reaktif elementler dahil olmak üzere birkaç yeni metal keşfetti. Davy, 1807'de **potasyum**u kostik potastan elde ederek keşfetti.

19. yüzyıldan önce potasyum ve sodyum arasında hiçbir ayrım yapılmamıştı. Potasyum, elektrolizle izole edilen ilk metaldi. Davy, aynı yıl içinde erimiş sodyum hidroksitten elektrik akımı geçirerek **sodyum**u izole etti.

1808'in ilk yarısında Davy; kireç, magnezya, strontitler ve baritler dahil olmak üzere alkali topraklarda bir dizi başka **elektroliz** deneyi gerçekleştirdi.

Berzelius'tan Dr. Pontin ile birlikte bir cıva katodu kullanarak kireç ve baritleri elektrolize ederek başarılı bir şekilde kalsiyum ve baryum amalgamları elde ettiğini iddia eden bir mektup aldı. Davy, bu deneyleri neredeyse anında başarıyla tekrarlamayı başardı ve Berzelius'un yöntemini strontitlere ve magnezya'ya genişletti.

1808'de Royal Society'ye **baryum**, **kalsiyum**, **stronsiyum,** ven magnium adını verdiği (sonra **magnezyum**a dönüştü) dört yeni metali başarıyla izole ettiğini bildirdi. Bu deneylerden elde edilen gözlemler Davy'nin 1809'da bor izole etmesine de yol açtı. Ayrıca klorun kimyasal bir element olduğunu gösterdi ve **klor gazının isim babası** oldu. Daha sonrasında Davy, nitrojen triklorür ile bir laboratuvar kazasında kendini ciddi şekilde yaraladı Davy'nin kazası onu Michael Faraday'ı işe almaya sevk etti ve 1813-1815 yılları arasında Faraday ile beraber Avrupa seyahatine çıktılar.

1815'te İngiltere'ye döndükten sonra Davy, kömür madenlerinde güvenle kullanılabilecek lambaları denemeye başladı Davy, bir lambanın alevini kapatmak için demir bir gazlı bez kullanmayı ve böylece lambanın içinde yanan metanın genel atmosfere geçmesini engellemeyi tasarladı. Davy lambanın patentini almayı reddetti ve icadı 1816'da **Rumford madalyası**yla ödüllendirilmesine yol açtı. Daha birçok alanda çalışma yapan Davy'nin en büyük keşfi elbette **M.Faraday**'dı.

Bir şair olarak da Davy tarafından yüz altmışın üzerinde el yazması şiir yazılmıştır ve bunların çoğu kişisel defterlerinde bulunur. Yazdığı şiirlerin çoğu basılmadı ve onun yerine birkaçını arkadaşlarıyla paylaşmayı seçti. Bilinen sekiz şiirini yayımladı. Şiirleri, hem kariyerine hem de insan yaşamının belirli yönlerine ilişkin algısına ilişkin görüşlerini yansıtıyordu. Ölüm, metafizik, jeoloji, doğal teoloji ve kimya gibi insan çabaları ve yaşamın yönleri üzerine yazdı.

Davy, 1812'de şövalye ilan edildi ve 1818'de insanlığa katkılarından dolayı baronet yapıldı. Zengin ve tanınmış bir kadın olan Jane Apreece ile evlendi. 1820'de Londra Kraliyet Cemiyeti'nin başkanı oldu ve 1826'da Londra Zooloji Derneği'nin kurucu üyelerinden biri oldu. Hayatının son aylarını; popüler, biraz serbest biçimli bir şiir, bilim ve felsefe üzerine düşünceler derlemesi olan **Consolations in Travel**'ı yazarak geçirdi.

1827'den itibaren sağlığı azalmaya başladı. 20 Şubat 1829'da bir felç geçirdi. İyileşmek için aylarca uğraştıktan sonra Davy, 29 Mayıs 1829'da İsviçre'nin Cenevre kentinde bir otel odasında hayatını kaybetti.

KAYNAKLAR:

John Ayrton Pari, The Life of Sir Humphry Davy David Knight, Humphry Davy: Science and Power Science History Institue

AN UNDERRATED BRILLIANT MIND:HUMPHRY DAVY

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Earth crust, stone sphere, or lıthosphere are the structures that are located at the furthest outer part of our earth. Materıals ın the earth's crust are made from elements, compounds, alloys, and mıxtures.
Have you ever thought about whıch element you wıll encounter the most when you look at the earth's crust?
Even though there are many studıes about ıt, the most valıd studıes are held by Davıd Darlıng and Israel Scıence and Technology Center. Both studıes gıve sımılar results. What are these elements?

1. Oxygen (O) (%46,6)
2. Silicon (Si) (%27,7)
3. Alumınum (Al) (%8,13)
4. Iron (Fe)(%5,0)
5. Calcıum (Ca)(%3,6)
6. Sodıum (Na)(%2,8)
7. Potassıum (K)(%2,59)
8. Magnesıum (Mg)(2,09)
9. Titanıum (Tı)(%0,44)
10. Hydrogen (H)(%0,14)

When we examine these element's structure, history, and discovery, we are going to see the name HUMPHRY DAVY a lot. Wouldn't you like to know more about the scientist who has a big share in the discovery of potassium, sodium, calcium, barium, and many more?

Sir Humphry Davy was born on 17th of December 1778 at Penzance/England. Davy was the oldest son of a family from the middle class who owned property at Cornwall Ludgvan. Some church documents show that his father and grandfather were a considerable civil engineer, going back to 1635, and the past cannot be found yet.
According to his brother, John, Davy used to read, draw, go fishing, write poems, and sketch things he was interested in a lot.
Another area of interest for him was fireworks. Writer John Ayrton Paris stated that Davy tried to make fireworks and explosives, took notes about it, and even named it thunder dust in his book **"The Life of Sir Humphry Davy"**.
Davy, who was an enthusiastic, affections, and popular young man, had a quick mind and a vivid imagination.
His education life started with the grammar school at Penzance and he continued his education at Truro in 1793. Davy, once said in one of his letters to his mom at school days: **"Learning naturally is a true pleasure; how unfortunate is it then that in most schools it's made a pain."**

In 1975 one year after the death of his father, Robert, Davy -who was the apprentice of a surgeon and pharmacist John Borlase- was hoping to get qualified in medicine but instead of preparing medicament, he was conducting experiments that involved chemical operations. It is said that he produced explosions more than once, endangering the doctor and all-glass vials.
Even though he kept doing his own researches, his mind was occupied with philosophy for some time. He then turned to chemistry, the research that his temperament started with all his enthusiasm. He had a desire to explore various mixtures as pigments. Although he sought new combinations to add a new and vibrant color richness to his drawings, it was the character of his mind to follow every innovation with enthusiasm and reach results with his own natural strengths instead of what was recorded.
However, he started his serious scientific studies in 1797. Davy's speeches caught Davies Gilbert's attention, Gilbert offered him to use his library on Tradea and took him to his home, which was a well-equipped chemistry lab for that day. Davy formed extremely independent views on such topics as heat, light and the nature of electricity, and the chemical and physical doctrines of Antoine Lavoisier. After that, they entered a geological discussion with a few friends over the competing values of the Neptunist hypotheses. They traveled with Davies Gilbert and introduced Davy to Beddoes. Beddoes, who founded a **"Pneumatics Institute"** in Bristol, needed an assistant to manage the laboratory. Gilbert recommended Davy. On October 2, 1798, Davy joined the Pneumatic Institute in Bristol. This place was set up to investigate the medicinal powers of fake air and gases, and Davy would direct various experiments and did not intend to quit the medical profession. He was determined to study and graduate in Edinburgh, but soon began charging parts of the institution with voltaic batteries.

On Gilbert's advice, he was appointed as the chief of chemistry to the Pneumatics Institute, which was established in Clifton to investigate the possible therapeutic uses of various gases. Davy attacked the problem with characteristic enthusiasm and showed an extraordinary ability for experimental inquiry. In his small private laboratory, he researched the composition of nitrogen oxides and acids, as well as ammonia, to test the claim that nitrous oxide (laughing gas) is the "principle of contamination" - that is, it causes diseases, and persuaded his science and literary friends to report the effects of inhaling nitrous oxide. All of them became regular users of nitrous oxide, on which Davy became addicted. Gas was popular with Davy's friends and acquaintances and stated that it could be beneficial for surgical operations. Davy took significant risks in these gas experiments. He said: “When pure, the gaseous oxide of nitrogen is perfectly breathable. It is never harmful, but poisons when it contains nitrous gas. I found a way to purify it. " He said he had inhaled sixteen liters for about seven minutes and was absolutely drunk.

Davy became increasingly known for his experiments in 1799. He was invited to teach at the newly established **Royal Institute of Great Britain** in London. The lectures that Sir Benjamin Thompson, Sir Joseph Banks, and chemist and physicist Henry Cavendish carefully prepared and rehearsed on electric batteries to advance their research which quickly became important with social functions. On April 25, 1801, Davy gave his first lecture on the relatively new topic **'Galvanism'**. Humphry Davy had the world's most powerful electric battery at the Institute at the time. With this, Davy created the first incandescent light by passing an electric current through a thin strip of platinum because the metal had an extremely high melting point. It was neither bright enough nor long-lasting enough for practical use, but it demonstrated the principle. When Davy's lecture series on Galvanism ended, he advanced to a new series on **Agricultural Chemistry**, and its popularity continued to grow rapidly. Davy was a pioneer in the field of electrolysis, using a voltaic stack to separate common compounds and thus prepare many new elements. He continued to electrolyze molten salts and discovered several new metals, including sodium and potassium, the highly reactive elements known as alkali metals. Davy discovered **potassium** by extracting it from caustic potash in 1807. Before the 19th century, no distinction was made between potassium and sodium. Potassium was the first metal to be isolated by electrolysis. In the same year, Davy isolated **sodium** by passing an electric current through molten sodium hydroxide. Davy in the first half of 1808; conducted several other **electrolysis** experiments in alkaline soils including lime, magnesia, strontites, and barites. He received a letter from Berzelius claiming that he successfully obtained calcium and barium amalgams by electrolyzing lime and barite using a mercury cathode together with Dr. Pontin. Davy was able to successfully repeat these experiments almost instantly, extending Berzelius' method to strontites and magnesia. In 1808, he reported to the Royal Society that he had successfully isolated four new metals, which he called: **barium**, **calcium**, **strontium**, and magnium (later converted to **magnesium**). Observations from these experiments also led Davy to isolate boron in 1809. He also showed that chlorine is a chemical element and became **the name father of chlorine gas**. Later, Davy seriously injured himself in a laboratory accident with nitrogen trichloride. Davy's accident prompted him to hire Michael Faraday, and they both traveled to Europe from 1813 to 1815. After returning to England in 1815, Davy began experimenting with lamps that could be used safely in coal mines. Davy designed to use an iron gauze to turn off the flame of a lamp, thus preventing the burning methane inside the lamp from passing into the general atmosphere. Davy refused to patent the lamp, and his invention led to him being awarded the **Rumford medal** in 1816. Of course, Davy's greatest discovery, who has worked in many other fields, was **M. Faraday**. As a poet, over one hundred and sixty manuscript poems were written by Davy, most of them in his personal notebooks. Most of the poems he wrote were not published and instead chose to share a few with his friends. He published eight known poems. His poems reflected his views on both his career and his perception of certain aspects of human life.

He wrote on human endeavors and aspects of life such as death, metaphysics, geology, natural theology, and chemistry. Davy was knighted in 1812 and became a baronet in 1818 for his contributions to humanity. He married Jane Apreece, a wealthy and well-known woman. He became the president of the Royal Society of London in 1820, and in 1826 he became one of the founding members of the London Zoological Society. In the last months of his life; he spent time writing **Consolations in Travel**, a popular, somewhat free-form collection of poetry, thoughts on science and philosophy. From 1827 his health began to decline. He suffered from a stroke on February 20, 1829. After struggling for months to recover, Davy died in a hotel room in Geneva, Switzerland, on May 29, 1829.

RESOURCES: John Ayrton Pari, The Life of Sir Humphry Davy
David Knight, Humphry Davy: Science and Power
Science History Institue

KARADELİKLER HAKKINDA NELER BİLİYORUZ?

YAZAN: EDANUR KALAYCI
ANKARA ÜNİVERSİTESİ KİMYA MÜHENDİSLİĞİ LİSANS 1. SINIF ÖĞRENCİSİ

DAHA ÖNCEDEN BİR KARADELİĞİN FOTOĞRAFINI GÖRMEYENİMİZ YOKTUR. BİR KARADELİĞİ FOTOĞRAFLAMAK; BİR MANZARA FOTOĞRAFI ÇEKMEK KADAR KOLAY BİR İŞ DEĞİLDİR. DETAYLI VE OLDUKÇA ZAHMETLİ BİLİMSEL BİR SÜRECİN ÜRÜNÜDÜR.

TÜRK BİLİM İNSANI PROF. DR. FERYAL ÖZEL'İN DE İÇİNDE BULUNDUĞU EHT PROJESİNDE ÇALIŞAN EKİP BUNU BAŞARDI!

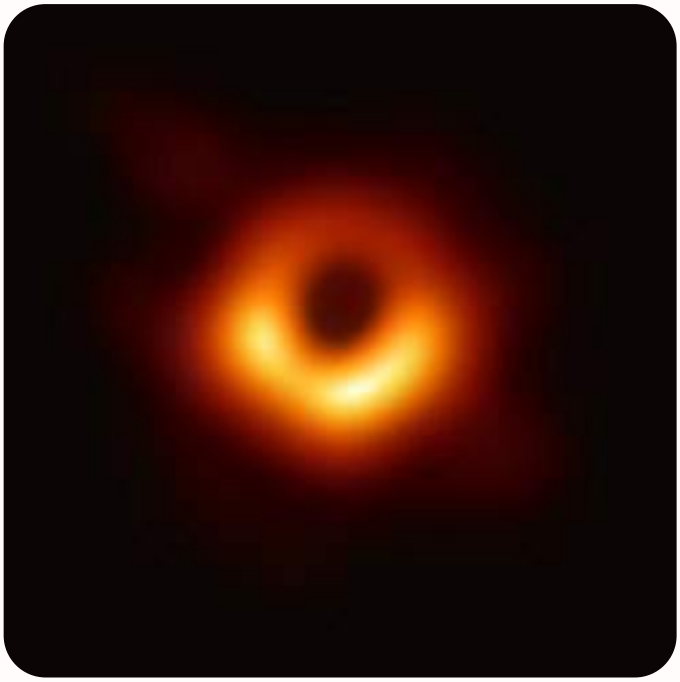
ABD Ulusal Bilim Vakfının 10 Nisan 2019'da paylaştığı ilk karadelik görüntüsünün elde edilmesini sağlayan Olay Ufku Teleskobu (EHT) projesinde çalışan 200'den fazla bilim insanı arasında bir Türk bilim kadını da yer alıyordu.

Başarısıyla Türkiye'nin gururlarından olan Prof. Dr. Feryal Özel Arizona Üniversitesi'nde astronomi ve fizik profesörüdür. Profesör Özel aynı zamanda NASA Astrofizik Komitesi Başkanlığı, NASA Lynx Uzay Teleskobu Bilim ve Teknoloji danışmanlık ekibinin başkanlığı ve Olay Ufku Teleskobu Bilim Konseyi ve Modelleme ve Analiz Çalışma Grubu'nun başkanlığını yapmaktadır.

Özel; yüksek lisansını Kopenhag kentindeki Niels Bohr Enstitüsünde, doktorasını astrofizik üzerine Harvard Üniversitesi'nde tamamladı. Doktora programının son senesinde Hubble doktora sonrası bursu kazanan Özel, 2002-2005 yıllarında Princeton İleri Araştırmalar Enstitüsünde görev yaptı. 2003 yılında dünyanın en tanınmış bilim insanları ile birlikte "Büyük Fikirler" listesine alınmasıyla ve Nötron yıldızları, kara delikler ve manyetarlar alanındaki katkılarıyla tanındı.

Feryal Özel, Bilim Akademisi Konferansı: Bir Karadeliğin İlk Fotoğrafı
Merak edenler karekodu okutarak videoyu izleyebilir.

TARA BENİ



"Karadelikler ışığı yuttuğu için bildiğimiz anlamda ışığı keserek gölge yapmıyor. Ancak, ışığı güçlü yerçekimiyle bükerek kendi çevrelerinde yörüngeye girmeye zorluyor ve böylece büyük bir gölge oluşturuyor. Bu aktif gölge karadeliğin sınırı olan olay ufkundan çok daha büyük oluyor. M87 galaksisinin aktif süper kütleli kara deliği de 100 milyar km çapında bir gölge oluşturuyor. Olay Ufku teleskopu işte bu gölgenin fotoğrafını çekmiş bulunuyor. Yoksa karadeliğin olay ufkunu doğrudan göremiyoruz; ama gölgeden 2,5 kat küçük olan bu çemberi fotoğrafta işaretleyebiliyoruz."

Prof. Dr. Feryal Özel'in bilime meraklı gençlere tavsiyesi: **"Bilim, insanı dünyanın farklı bir noktasına götürebilen, ufuklar açan, olmayanı olur kılan bir olgu. Dolayısıyla bilime gerçekten ilgileri varsa buna dört elle sarılıp fırsat yaratıp bu pozitif olaya katkıda bulunmalarını çok isterim."**

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WHAT DO WE KNOW ABOUT BLACKHOLES?

WRITTEN BY: EDANUR KALAYCI
ANKARA UNIVERSTY CHEMICAL ENGINEERING UNDERGRADUATE, 1ST YEAR STUDENT

WITH THE ASSUMPTION OF THERE IS NO ONE WHO HASN'T SEEN A PHOTO OF A BLACKHOLE BEFORE. BLACKHOLE PHOTOGRAPHING IS NOT AS EASY AS TAKING A LANDSCAPE PHOTO. IT IS A PRODUCT OF A DETAILED AND VERY LABORIOUS SCIENTIFIC PROJECT.

THE TEAM WORKING ON THE EHT PROJECT, WHICH INCLUDES TURKISH SCIENTIST PROF. DR. FERYAL ÖZEL, HAS ACHIEVED THIS!

Acquisition of the first blackhole image shared by the US National Science Foundation on April 10, 2019, among more than 200 scientists working on the Event Horizon Telescope (EHT) project, there was also a Turkish scientist woman.

One of Turkey's pride in the success, Prof. Dr. Feryal Özel is a professor of astronomy and physics at the University of Arizona. Professor Özel is also a Chairman of the NASA Astrophysics Committee, NASA Lynx Space Telescope Science and Technology advisory team, and also the chairman of the Event Horizon Telescope Science Council and Modeling and Analysis Working Group. Özel received her master's degree at the Niels Bohr Institute in Copenhagen and her doctorate in astrophysics at Harvard University. Özel who received a Hubble postdoctoral fellowship in the final year of her doctoral program worked at Princeton Institute for Advanced Studies in 2002-2005.

In 2003, she was included in the "Big Ideas" list with the world's most renowned scientists and known for her contributions to neutron stars, blackholes, and magnetars.

"Since blackholes absorb light, they do not cast shadows by cutting the light as we know it.
However, its light is strong bending by gravity, forcing it to orbit around its own so that a large shadow makes up. This active shadow is much larger than the event horizon, which is the boundary of the blackhole. M87 Galaxy's active supermassive blackhole also casts a shadow with a diameter of 100 billion km. Event Horizon Telescope has taken a picture of this shadow. Otherwise, the event horizon of the blackhole won't be visible, but we can mark this circle 2.5 times smaller than the shadow in the photograph."

Prof. Dr. Feryal Özel's Advice to Young People Interested in Science:

"Science is a phenomenon that can take people to a different point of the world, open horizons, and make the non-existent viable. Therefore, if they are genuinely interested in science, they can hug it and contribute to this positive event. I would love them to be found. "

Feryal Özel, Conference of Science Academy: First Photograph of A Black Hole
Those who are curious can watch the video by scanning the QR Code.

SCAN ME

RESOURCES:

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https://khosann.com/olay-ufku-teleskopu-ilk-kara-delik-resmini-cekti/

1 FİLM 1 KİTAP

YAZAN:TUĞBA AYDEMİR
GAZİ ÜNİVERSİTESİ KİMYA MÜHENDİSLİĞİ LİSANS 2. SINIF ÖĞRENCİSİ
&BAŞAK ÖZCAN
ANKARA ÜNİVERSİTESİ KİMYA MÜHENDİSLİĞİ HAZIRLIK ÖĞRENCİSİ

TRANSCENDENCE (2014)

IMDb: 6.3/10

Ünlü görüntü yönetmeni Wally Plister'ın ilk uzun metraj deneyimi olan ve 2014 yılında vizyona giren Transcendence, ilgi çekici ancak görece az sayıda izleyiciye sahip bir bilimkurgu Filmidir. Başrollerini Rebecca Ball ve Johnny Depp in paylaştığı Film, Morgan Freeman, Cillian Murphy gibi usta oyuncuları da kadrosunda barındırıyor. Filmde Johnny Depp eşi Evelyn ile yapay zeka üzerinde çalışan bir bilim insanı olarak karşımıza çıkıyor. Yapay zekanın insan benliği için bir tehdit olduğunu düşünen terörist bir grup, ülkede bu konu üzerinde çalışmalar yapan merkezlere ve bilim insanlarına saldırı düzenler. Will Caster saldırı sonrası yaralanır ve bilim adamını yaralayan kurşun ölümcül bir radyoaktif madde barındırmaktadır. Yaklaşık bir ay ömrü kaldığını öğrenen Will, zihinsel anlamda varlığını devam ettirebilmek için eşi Evelyn Sile geliştirdiği bir sistem sayesinde beynini bir bilgisayara aktarır. Bedeni yok olan bilim adamı bilgisayar aracılığıyla iletişim kurabilen bir yapay zekâ olarak geri döner. Yapay zekanın internet ağına erişiminin sağlanmasıyla birlikte beklenmedik olaylar gerçekleşmeye başlar. Bu durumdan haberdar olan bilim insanları, onun varlığının insanlık açısından bir tehlike olduğunu düşünecek ve yok etmek için ellerinden geleni yapacaklardır.

BEYİN: SENİN HİKAYEN

David Eagleman

İnsanlarla yaptığınız günlük konuşmalardan kültür birikiminize kadar, yaşamınız boyunca kazandığınız bütün deneyimler, beyninizdeki mikroskobik ayrıntıları biçimlendirir. Nöral açıdan bakıldığında kim olduğunuz, nerede bulunmuş ve neler yapmış olduğunuza bağlıdır.
Beyniniz yorulmak bilmeden biçim değiştirir ve sahip olduğu devreler sistemini sürekli olarak yeniden kurar. Deneyimleriniz benzersiz olduğundan, beyninizdeki nöral ağların içerdiği geniş ve ayrıntılı örüntüler de benzersizdir." Bu satırlarla başlayan Beyin adlı kitabı 2016 yılında David Eagleman bizlerle buluşturmuştur. Bize beynimizin yaşadıklarımızla birlikte nasıl şekillendiğinin ve yaşamımızın beynimiz tarafından nasıl şekillendirildiğinin hikayesinin anlatan David Eagleman, bizi içimizdeki kozmosa doğru hızlı ve nefes kesici bir yolculuğa çıkarıyor: Gerçek nedir? "Sen" kimsin? Nasıl karar veriyorsun? Beynin neden başkalarına ihtiyaç duyuyor? Teknoloji "insan olmak"ın anlamını değiştirebilir mi? Kitapta beyin, zihinsel süreçler, algılarımız, sinirbilim ve bunun ü zerine inşa edilen teknoloji, basit ve eğlenceli bir biçimde anlatılıyor. Eagleman, bir sinirbilimci olmasına rağmen insan davranışını anlamlandırabilmek için farklı birçok açıdan bakmayı başarabiliyor. Psikoloji, sosyoloji, felsefe, tarih gibi birçok alanı sinirbilimle harmanlayarak ortaya gelişmiş bir eser koymuştur. "Beyin: Senin Hikâyen" derken o hikâyenin gerçek yaşam hikâyelerinden, tarihten, yapılan deneylerden derlenip bir şahesere dönüştürülmüş olmasına tanıklık edeceksiniz.

1 MOVIE 1 BOOK

WRITTEN BY: TUĞBA AYDEMİR

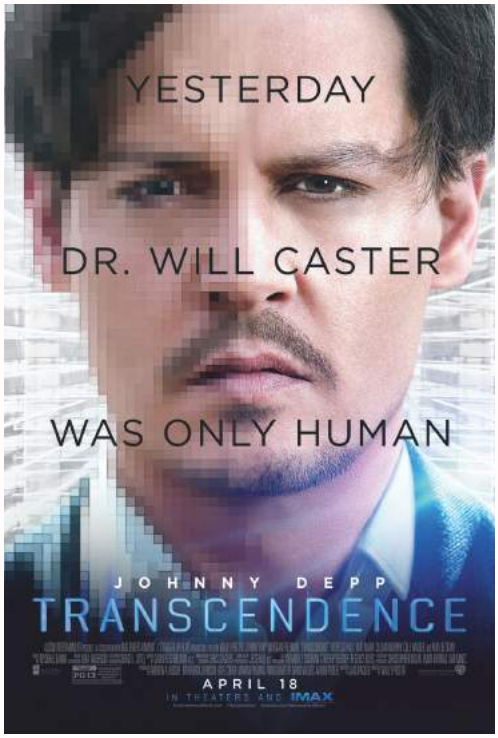
GAZI UNIVERSITY CHEMICAL ENGINEERING UNDERGRADUATE, SECOND-YEAR STUDENT

&BAŞAK ÖZCAN

ANKARA UNIVERSITY CHEMICAL ENGINEERING PREPARATORY STUDENT

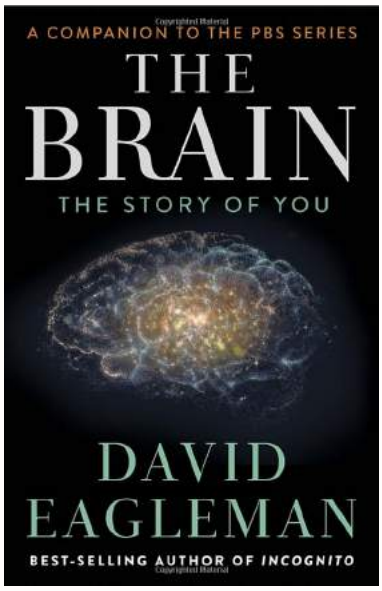
TRANSCENDENCE (2014)

IMDb: 6.3/10



The famous cinematographer Wally Plister's first feature film experience, Transcendence, which was released in 2014, is an interesting science fiction film with a relatively small number of viewers. The movie, starring Rebecca Bell and Johnny Depp, also includes master actors such as Morgan Freeman and Cillian Murphy in its cast. In the movie, Johnny Depp appears as a scientist working on artificial intelligence with his wife Evelyn. A terrorist group, who thinks that artificial intelligence is a threat to the human self, attacks the centers and scientists working on this issue in the country. Will Caster is injured after the attack and the bullet that injured the scientist contains a deadly radioactive substance. Will learns that he has a lifespan of about a month and transfers his brain to a computer thanks to a system he developed with his wife Evelyn in order to survive. The physically destroyed scientist is back as an artificial intelligence that can communicate via computer rotary. Unexpected events with the access of artificial intelligence to the internet network begin to happen. Scientists who are aware of this situation will think there is a danger to them and will do everything they can to destroy it.

THE BRAIN: THE STORY OF YOU



“From your daily conversations with people to your cultural heritage, all the experiences you gain throughout your life shape the microscopic details in your brain. From a neural perspective, who you are depends on where you have been and what you've done. Your brain tirelessly changes shape and constantly rebuilds its system of circuits. Because your experiences are unique, the wide range of neural networks in your brain and detailed patterns are also unique.” David Eagleman brought the book titled The Brain, which started with these lines, with us in 2016. David Eagleman, telling us the story of how our brain is shaped together with what we experience and how our life is shaped by our brain, takes us on a fast and breathtaking journey towards the cosmos within us: What is reality? Who are “You”? How do you decide? Why does your brain need someone else? Can technology change the meaning of “being human”? In the book, the brain, mental processes, our perceptions, neuroscience, and the technology built on it are explained in a simple and fun way. Eagleman, despite being a neuroscientist, manages to look from many different angles to make sense of human behavior. He has created an advanced work by blending many fields such as psychology, sociology, philosophy, and history with neuroscience. While saying "The Brain: The Story of You", you will witness that that story is compiled from real-life stories, historical experiments and transformed into a masterpiece.

Programlardaki öğretim elemanı sayıları

ÜNİVERSİTE ADI	ÖĞRET. GÖREVLİSİ	DOKTOR ÖĞRET. GÖREVLİSİ	ARAŞTIRMA GÖREVLİSİ	DOKTOR ARAŞTIRMA GÖREVLİSİ	DOKTOR ÖĞRET. ÜYESİ	DOÇ.	PROF.	TOPLAM AKADEMİSYEN
AFYON KOCATEPE ÜNİVERSİTESİ			2		3	1	1	7
ANKARA ÜNİVERSİTESİ				11		6	14	31
ATATÜRK ÜNİVERSİTESİ		8	1	2		6	12	29
ATILIM ÜNİVERSİTESİ		1	6		2	4	2	15
BOĞAZİÇİ ÜNİVERSİTESİ		6	14	6	4	4	13	47
BURSA TEKNİK ÜNİVERSİTESİ			9				5	14
ÇANAKKALE ONSEKİZ MART ÜNİVERSİTESİ			1		1	3	2	7
ÇANKIRI KARATEKİN ÜNİVERSİTESİ	1	1	4	1	6	1	1	15
ÇUKUROVA ÜNİVERSİTESİ		2					1	3
EGE ÜNİVERSİTESİ	1	1	4	1	6	8	8	29
ESKİŞEHİR OSMANGAZİ ÜNİVERSİTESİ	1		1	4	3	7	12	28
ESKİŞEHİR TEKNİK ÜNİVERSİTESİ			5	1	7	5	6	24
GAZİ ÜNİVERSİTESİ	54		9	3	4	8	20	98
HACETTEPE ÜNİVERSİTESİ	2	2	10	8	2	2	10	36
İSTANBUL TEKNİK ÜNİVERSİTESİ			26	4	2	6	19	57
İSTANBUL ÜNİVERSİTESİ-CERRAHPAŞA	1		8	5	5	8	18	45
İZMİR YÜKSEK TEKNOLOJİ ENSTİTÜSÜ	3	2	17		3	3	10	38
KOCAELİ ÜNİVERSİTESİ			4	4	3	5	3	19
KONYA TEKNİK ÜNİVERSİTESİ		1	4	2	4	8	7	26
MARMARA ÜNİVERSİTESİ			6		4	4	5	19
MERSİN ÜNİVERSİTESİ			5		1	2	4	12
ONDOKUZ MAYIS ÜNİVERSİTESİ			5		4	1	2	12
ORTA DOĞU TEKNİK ÜNİVERSİTESİ			26		5	3	9	43
OSMANİYE KORKUT ATA ÜNİVERSİTESİ			3		6	2		11
PAMUKKALE ÜNİVERSİTESİ	1		2		2	5	1	11
SİVAS CUMHURİYET ÜNİVERSİTESİ	1		3		6	1	7	18
SÜLEYMAN DEMİREL ÜNİVERSİTESİ			3		6	9	1	19
UŞAK ÜNİVERSİTESİ	1		1	2	6	2	2	14
VAN YÜZÜNCÜ YIL ÜNİVERSİTESİ			2		3	6	2	13
YEDİTEPE ÜNİVERSİTESİ	1		1		4	4	2	12
YILDIZ TEKNİK ÜNİVERSİTESİ	3		9		6	16	6	40
TOPLAM AKADEMİSYEN	70	24	191	54	108	140	205	

BİLİMSEL YAYIN ARŞİVİ & EK1

Derleyen: Abdelfettah Erbai[1] , Mert Göktepe[2], Yunus Emre Uyar[2],Özge Özkılınç[3]

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Türkiye'de yayınlanan Kimya Mühendisliği araştırmalarını tek bir datadan edinebilme ve takip edebilme olasılığımız nedir?

2020 YILINDA KİMYA MÜHENDİSLİĞİ ALANINDA YAYIMLANAN ULUSLARARASI BİLİMSEL MAKALELER*

*5 Aralık 2020'ye kadar yayımlanan makaleleri içermektedir.

Günümüzde her yıl değerli araştırmacılarımız ve bilim insanlarımız bilim dünyasına katkılar sunmaktadır. Kimya Mühendisliği bölümü çeşitli bilim alanlarını içinde barındıran zengin bir meslek dalıdır. Türkiye'de Kimya Mühendisliği eğitimi alan meslektaşlarımız güncel makaleleri ilgili araştırmacının web sitesinden yada araştırmaya yönelik çeşitli başlıklardan makalelere ulaşabilmektedir. Peki bizim her yıl Türkiye'de yayınlanan Kimya Mühendisliği araştırmalarını tek bir datadan edinebilme ve takip edebilme olasılığımız nedir? İşte bu soruyla beraber bu çalışma ortaya çıkmıştır, biz bu olasılığı artırmak ve size bilim dünyasında yapılan gelişmeleri tek bir kaynakta sunmak istedik. Türkiye'deki Kimya Mühendisliği bölümünde eğitim veren değerli öğretim üyelerimizin ve araştırma görevlilerimizin 2020 yılında yapmış oldukları bilimsel yayınları üniversitelerin web sitelerinden ve bunlara bağlı eklenti web sitelerinden derlemeye çalıştık. Kullandığımız kaynaklardan başlıcaları üniversite web sayfaları, avesis, scopus, google scholar ve researchgate'dir. Yayımlanan bilimsel makaleler araştırmacılarımızın altında sıralı olarak verişmiştir. Çalışma dergide Ek-1 olarak verilmiştir. Yaşasın bilimin özgürlüğü.

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