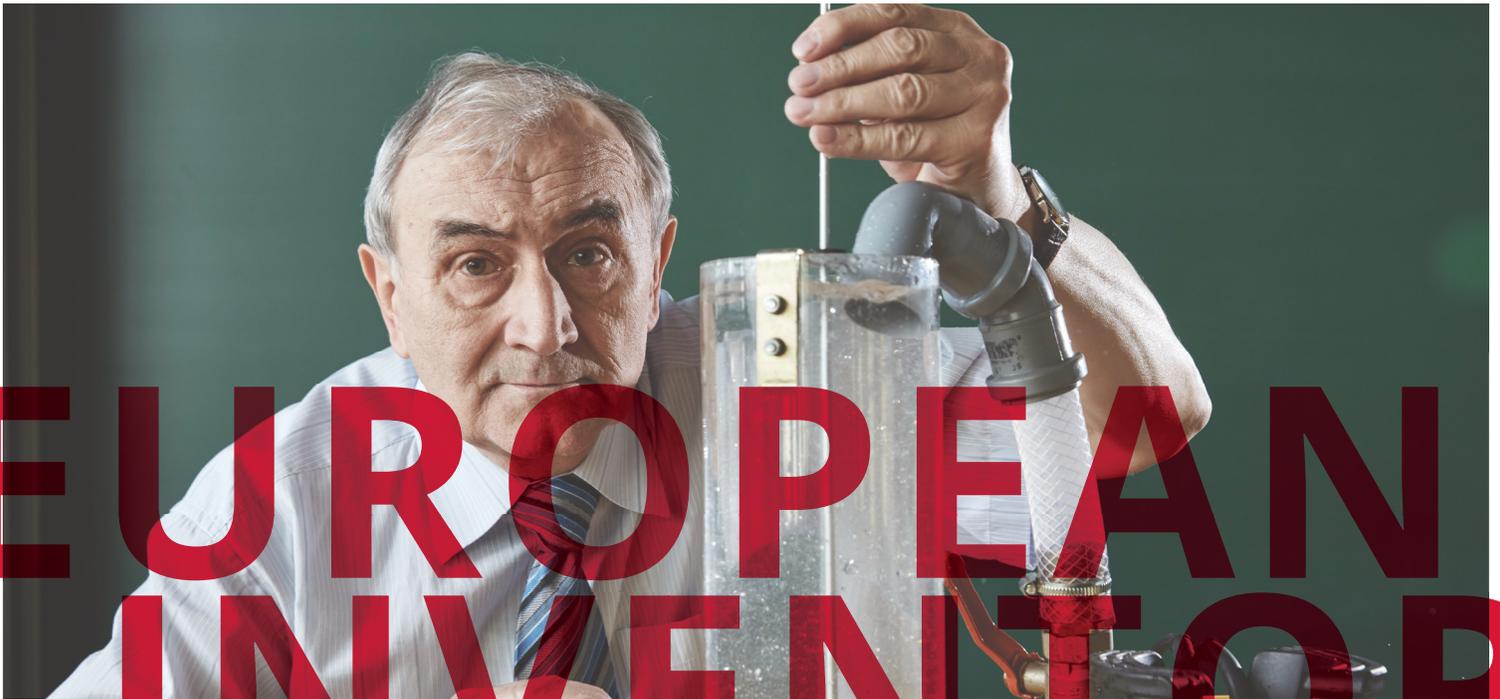




AUTENTIC
DISTRIBUTION

2016



EUROPEAN INVENTOR AWARD





Join us to celebrate the Spirit of Invention! For the first time Autentic Distribution, together with producer Bilderfest, offers films that come along with the ceremony of the European Inventor Award. Established in 2006, the EIA is awarded each year by the European Patent Office. 15 individuals and teams whose groundbreaking inventions give answers to the challenges of our time and thus contribute to social progress, economic growth and prosperity are awarded. The EPO produced 15 journalistic films (7-10') that are basically intended for Science TV. Those films possess high journalistic and visual quality. Be the one to spread the knowledge! In order to introduce the activities of the European Patent Office to a wider public, the planting of the films on international TV stations or their online platforms is one of EPO's most essential communication measures. In each country one broadcaster gets the opportunity to partner this project.



INVENTIONS



1 **Gluten Substitutes from Corn**

Inventor

Virna Cerne, Ombretta Polenghi

Category Industry

Technology Food

Country Italy

Length 6'13"

Cerne and Polenghi have made it possible for people suffering from coeliac disease to enjoy fulfilling, flavoursome – and most importantly, gluten-free – diets without having to avoid foods such as pastas, breads or other baked goods. Gluten can be found in all sorts of food and beauty products, even some that may not be so obvious, such as soaps. For those with coeliac disease, consumption of even a tiny amount of gluten can trigger an immune reaction that damages the fine, bristly inner surface of the small intestine.

2 **Magnetic Particle Imaging**

Inventor Bernhard Gleich,

Jürgen Weizenecker and team

Category Industry

Technology Medical technology
(diagnostics)

Country Germany

Length 6'37"

As a new generation of medical imaging technologies, MPI delivers images at up to 0.5 mm spatial resolution, practically in real-time. MPI's high resolution and real-time imaging could allow investigation of an extensive range of dynamic medical phenomena, including cardiovascular research, which cannot be studied using other techniques. The technology offers significant improvements over the prior state of the art: MPI does not expose patients to ionising radiation, like X-rays and CT scans.



3 **Secure Smartcard Encryption**

Inventor Joan Daemen,

Pierre-Yvan Liardet and team

Category Industry

Technology Telecommunications

Country Belgium

Length 6'37"

Joan Daemen (Belgium) and Pierre-Yvan Liardet (France) are cryptographers who developed a method to bolster the security of smartcards with embedded microprocessors that can store a customer's phone data (SIM cards), a depositor's bank account information (debit cards) or personal information (government ID), to name a few. There are security measures in place to prevent a card from ever being used to break into recipient cards after the initial recording or to clone recipient cards.



4 **Treatment for Parkinson's Disease**

Inventor Alim-Louis Benabid

Category Research

Technology Medical treatments

Country France

Length 6'37"

The invention by French neurosurgeon and physicist Benabid is a novel treatment approach to neurological conditions, known as high-frequency deep brain stimulation (DBS). DBS relies on a surgical procedure during which doctors insert a high-frequency electrical probe into the patient's brain – worn permanently like a pace maker – which can then be used to administer electrical charges at controlled intensities of 130 HZ to targeted regions of the thalamus and surrounding areas.



The invention pioneered by Elvira Fortunato, Rodrigo Martins and their team at New University of Lisbon, consists of transistors crafted from cellulose fibre – in other words paper exploited for electronics purposes. The paper-based transistors open new applications for low cost and disposable electronics, require much less energy to manufacture, are made from readily available materials, and can be recycled safely as opposed to the standard silicon components that require high process temperatures creating, for low cost commodities the so-called high-tech trash that paper could replace part of it.



Paper Transistors

Inventor Elvira Fortunato, Rodrigo Martins
Category Research
Technology Electronics
Country Portugal
Length 6'30"

5

Rolling Fluid Turbine

Inventor Miroslav Sedláček
Category Research
Technology Mechanics
Country Czech Republic
Length 7'15"

6

Ultrasound to Safely Measure Brain Pressure

Inventor Arminas Ragauskas
Category SMEs
Technology Medical technology (diagnostics)
Country Lithuania
Length 8'14"

7



The SETUR Turbine, a novel hydropower turbine pioneered by engineer Miroslav Sedláček and team at the Czech Technical University in Prague, exploits a novel hydrodynamic principle – a rolling fluid principle (vortex dynamic) – making it possible to generate electricity in

small, previously untapped water reservoirs such as tidal streams, small rivers and brooks. This rolling fluid principle was discovered by Miroslav Sedláček in 1993. He used this as basis for construction of bladeless turbine (SETUR).

The two inventions by Arminas Ragauskas and his colleagues at the Health Telematics Science Centre at Kaunas University of Technology offer a safe and accurate method to non-invasively measure intracranial pressure and brain blood flow autoregulation, respectively, employing ultrasound waves instead of costly and potentially dangerous invasive surgery and implantation of invasive sensors into the brain. If left unchecked, the pressure can increase to dangerously high levels due to complications such as traumatic brain injury, stroke or brain tumours.



The team developed a way to safely store ammonia in solid form, thereby making it possible for drivers to use the volatile chemical in diesel vehicles to reduce NOx pollution or as an environmentally friendly alternative to fossil fuels. Integrated in a complete system, the cartridges of AdAmmine release ammonia to be mixed with diesel exhaust gases such that the NOx is reduced to harmless water vapour and nitrogen (which already make up ca 78% of the atmosphere). It can also be used as an indirect source of hydrogen for use in modified diesel engines or in electric fuel cells.



Ammonia Storage to Reduce NOx

Inventor T. Johannessen, U. Quaade, C. Hviid Christensen, J. Kehlet Norskov
Category SMEs
Technology Chemistry
Country Denmark
Length 7'40"

8

Helen Lee and her team at the Diagnostics Development Unit at University of Cambridge created the fundamental principle behind simple, rapid, point-of-care diagnostic tests for a range of different infectious diseases such as HIV, Hepatitis B, chlamydia, gonorrhoea or influenza. The rapid results of the test also solve the problem of patients being "lost to follow up" – by showing up for tests, leaving, and not returning for diagnosis – which can amount to 30–70% of patients in some areas.



Diagnostic Kits for Developing Countries

Inventor Helen Lee
Category SMEs
Technology Medical diagnostics
Country UK, France
Length 7'43"

9

The invention by American chemical engineer Robert Langer and team at the Massachusetts Institute of Technology (MIT) in Cambridge relies on delivering anti-cancer drugs in synthetic polymers to ensure their targeted delivery to target sites, such as tumour sites. Covering the highly potent pharmaceuticals in biodegradable plastics helps focus the drug's effect where it is needed: directly at the tumour site. The drugs used in the invention include those that are designed to "starve" tumours by inhibiting the process of angiogenesis – the formation of blood vessels feeding them.



Targeted Anti-Cancer Drugs

Inventor Robert S. Langer
Category Non-European Countries
Technology Medical treatments
Country USA
Length 5'47"

10

11 **Faster Wireless Connectivity**

Inventor

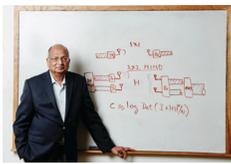
Arogyaswami Paulraj and team

Category Non-European Countries

Technology Telecommunications

Country India, USA

Length 7'00"



Paulraj is the principal inventor behind MIMO (multiple input multiple output), a wireless networking technology that is fundamental to the increases in connectivity speed to which many people around the world have grown accustomed to. Current 4G LTE networks and latest WiFi for instance, wouldn't be possible without this breakthrough invention. He improved the spectral efficiency of wireless networks, meaning he found a way to transmit higher data rate within the same channel bandwidth (frequency spectrum).

12 **Biomechatronic Leg Joints**

Inventor Hugh Herr

Category Non-European Countries

Technology Mechanics

Country USA

Length 8'41"

The invention pioneered by U.S. biophysicist and rock climber Hugh Herr is an intelligent knee prosthesis system marketed as the Rheo Knee. A ground-breaking invention in the field of prosthetics, the Rheo Knee allows wearers to walk with a natural gait by using a microprocessor that automatically adapts the prosthesis to the stance and walking speed. The Rheo Knee takes prosthetic design into the realm of bionics – the intersection of medicine and information technology.



13 **Helping Newborn Babies**

Breathe

Inventor Tore Curstedt

Category Lifetime Achievement

Technology

Medical technology

Country Sweden

Length 7'55"



Curosurf is a clinical treatment for pre-term infants – born before 37 weeks of gestational age – suffering from infant respiratory distress syndrome (RDS), a life-threatening condition of the lungs. Curosurf was developed by Tore Curstedt and Bengt Robertson. Curstedt's solution relies on a phospholipid extract of natural porcine lungs with the chemical name poractant alfa. Administered through a breathing tube and inserted into the trachea, Curosurf coats infants' lung alveoli and reduces surface tension, thereby preventing RDS.

14 **Electronic Stability Control for Cars**

Inventor Anton van Zanten

Category Lifetime Achievement

Technology Automotive

Country Germany, Netherlands

Length 5'17"

Anton van Zanten has dedicated a lifetime of invention to the improvement of automotive safety technology, most notably in the field of vehicle collision prevention. His milestone contributions include the widely marketed Electronic Stability Control system (ESC) – also known as ESP (Electronic Stability Program) – an electronic guidance technology that helps to avoid skidding under loss of surface traction, including aquaplaning or braking on snow or ice.



15 **Implantable Artificial Heart**

Inventor Alain Carpentier

Category Lifetime Achievement

Technology Medical technology (implants)

Country France

Length 8'53"

The CARMAT heart is the world's first fully implantable, self-regulating artificial heart. It was created by renowned French cardiologist Alain Carpentier who spent nearly two-and-a-half decades developing a mechanical pump that accurately replicates the contractions of a human heart. Unlike similar devices that simply maintain an unchanging rhythmic pulse, Carpentier's device adjusts the volume of blood it pumps according to the needs of the human body, thereby improving a patient's quality of life.



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