

# ALL NOBEL PRIZES 2021

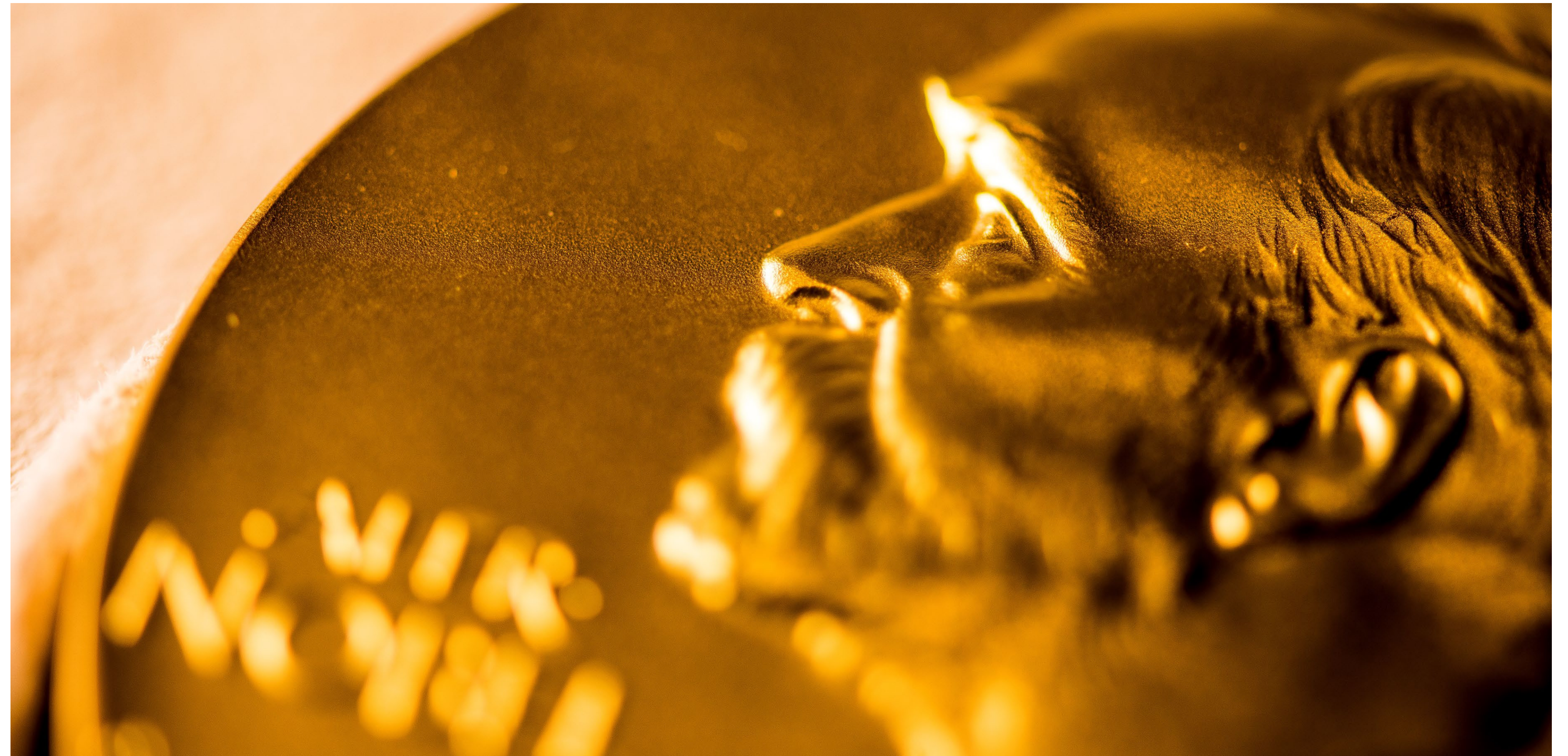




# The Nobel Prize

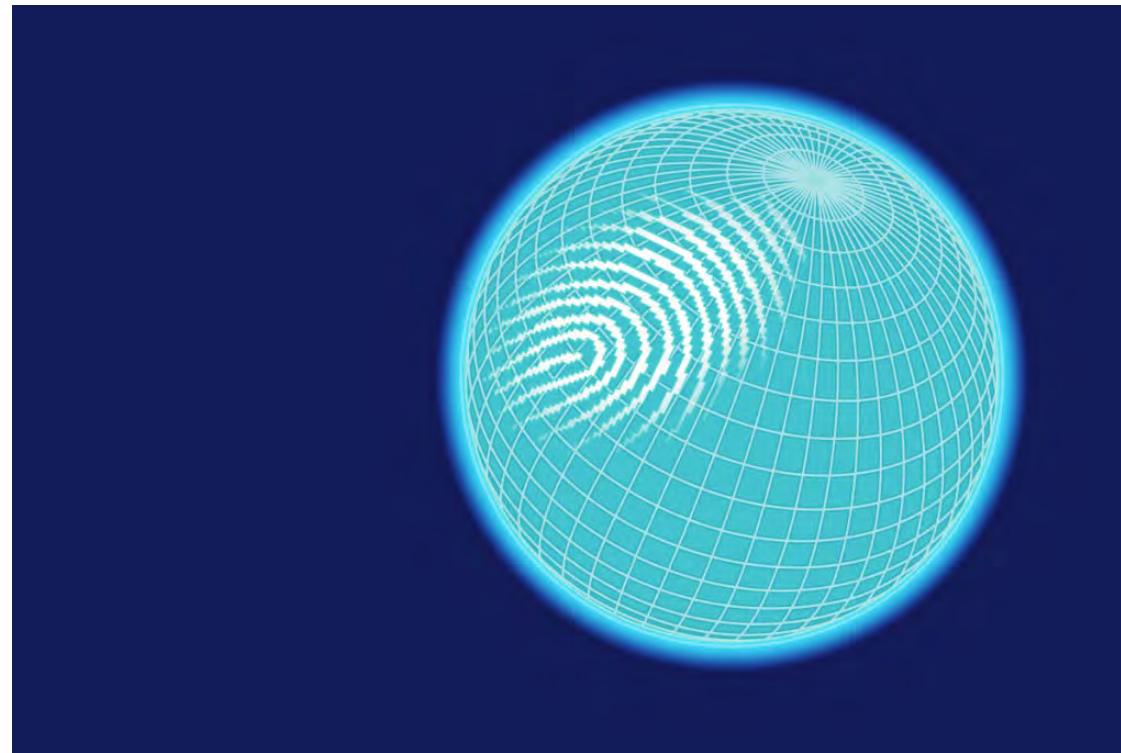
“to those who,  
during the  
preceding year, shall  
have conferred  
the greatest benefit  
to humankind”

Alfred Nobel  
(1833–1896)

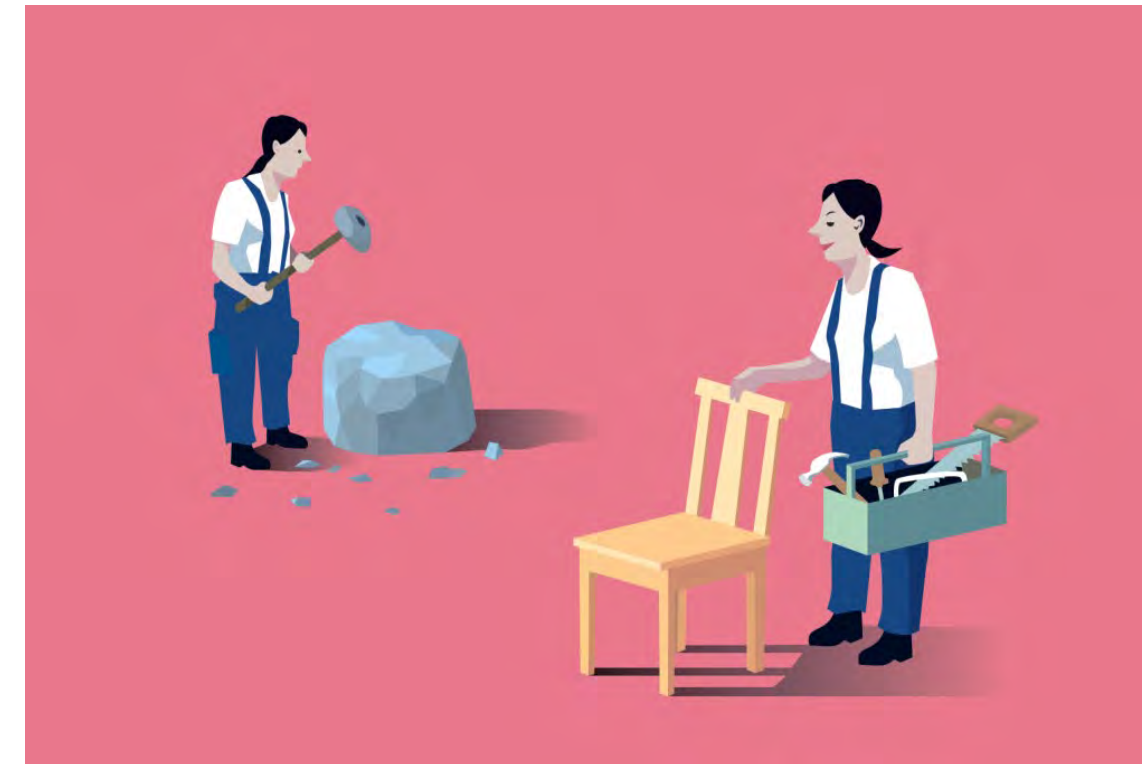




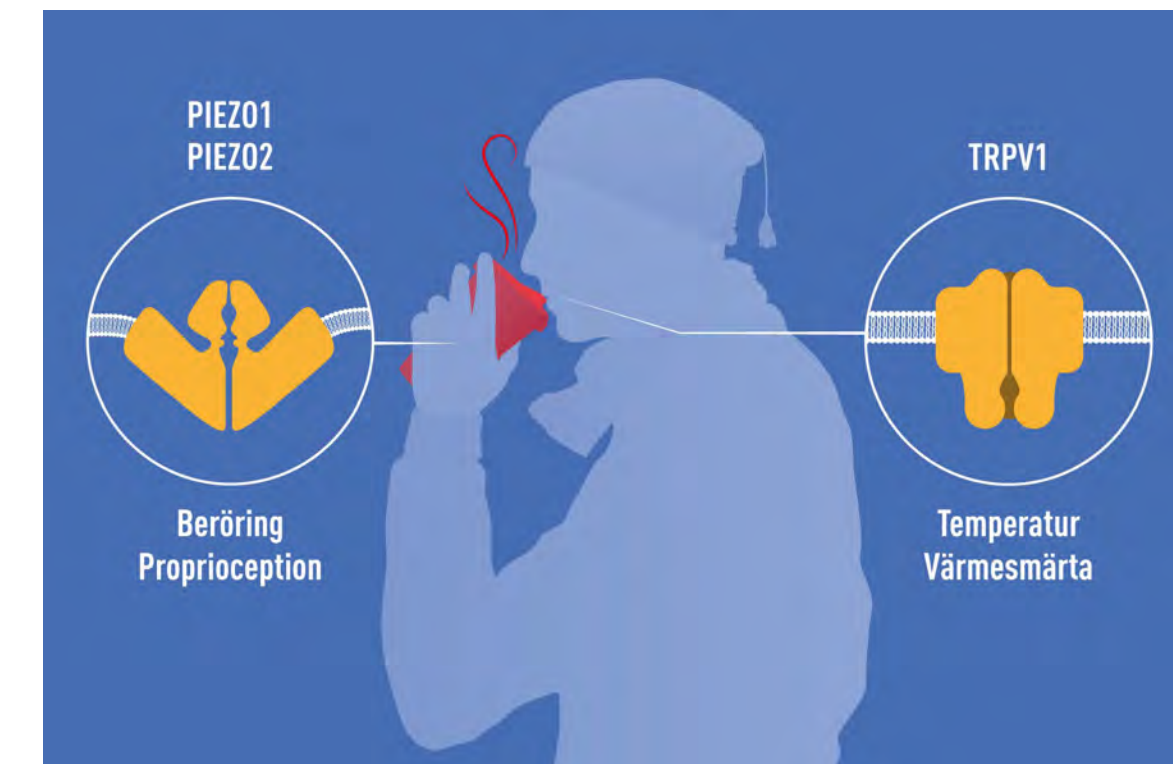
# The Nobel Prizes 2021



Physics prize:  
models of the climate and  
other complex systems



Chemistry prize:  
a tool that have revolutionised  
the construction of molecules



Medicine prize:  
receptors reacting to temperature  
and pressure



Literature prize:  
the author Abdulrazak Gurnah



Peace prize:  
efforts in the name of freedom of  
expression



Prize in economic sciences:  
natural experiments

# Physics prize 2021

The 2021 physics prize is awarded for models of the climate and other complex systems.





# The 2021 physics laureates

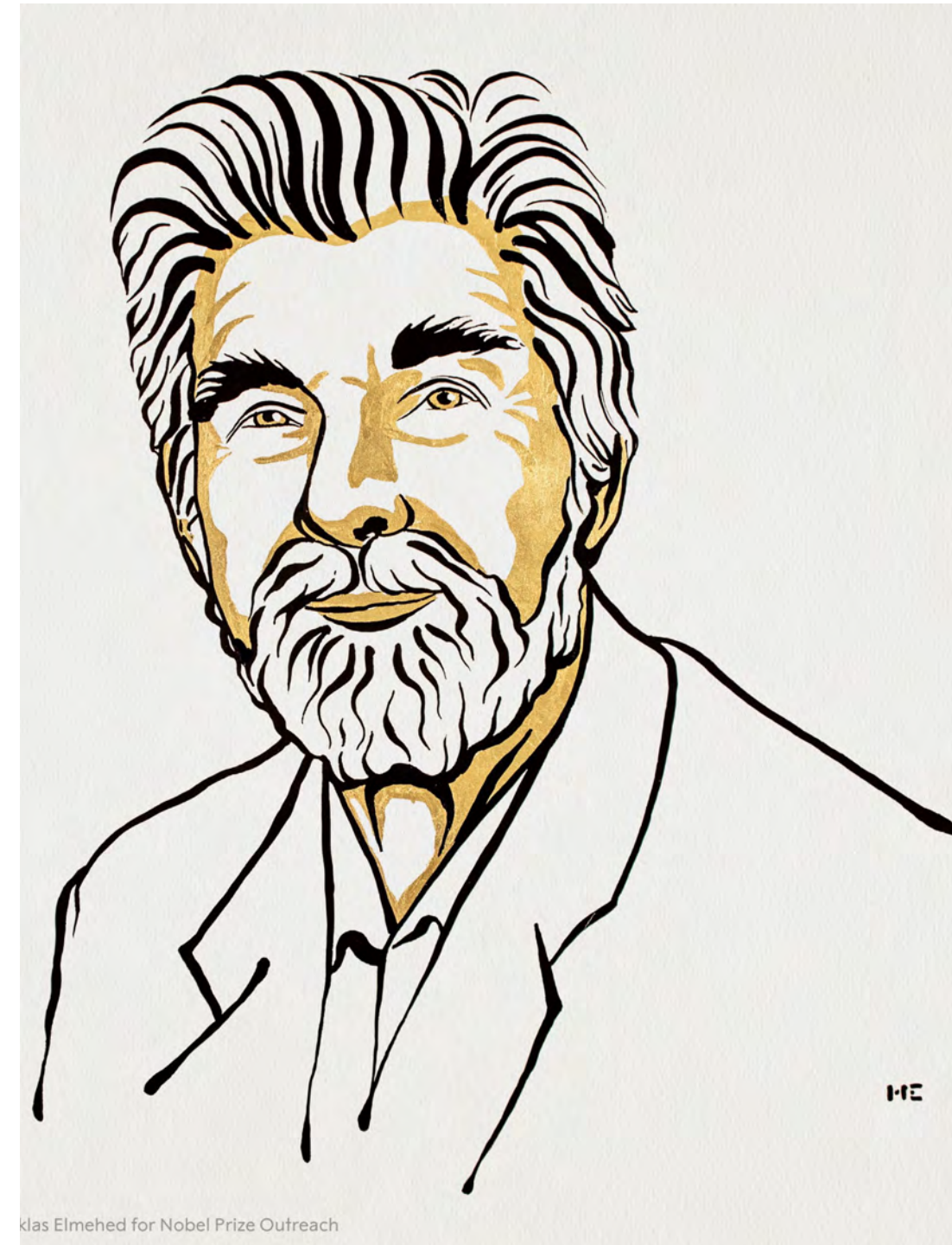
*"for groundbreaking contributions to our understanding of complex physical systems"*

Syukuro Manabe and Klaus Hasselmann *for the physical modelling of Earth's climate, quantifying variability and reliably predicting global warming"*

Giorgio Parisi *"for the discovery of the interplay of disorder and fluctuations in physical systems from atomic to planetary scales"*



Syukuro Manabe  
Born: 1931, Japan



Klaus Hasselmann  
Born: 1931, Germany

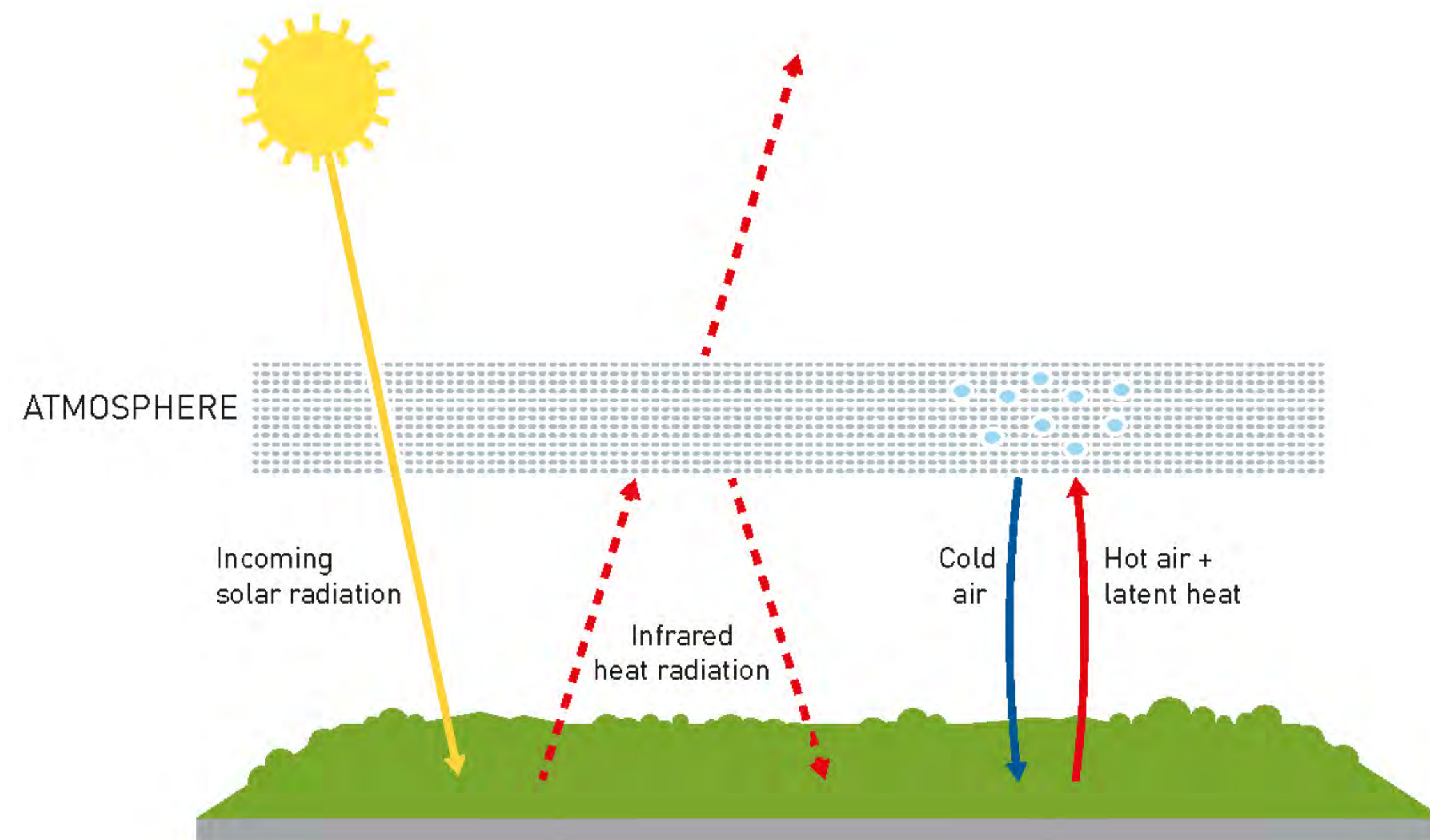


Giorgio Parisi  
Born: 1948, Italy



# Models of the climate and other complex systems

Syukuro Manabe has developed models that demonstrate that increased levels of carbon dioxide in the atmosphere lead to higher temperatures on the earth's surface.



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PHOTO: KENNETH ALLEN



# The 2021 chemistry prize

The prize is awarded for tools that have revolutionised the construction of molecules.





# The 2021 chemistry laureates

"for the development of asymmetric organocatalysis"



Benjamin List  
Born: 1968, Germany

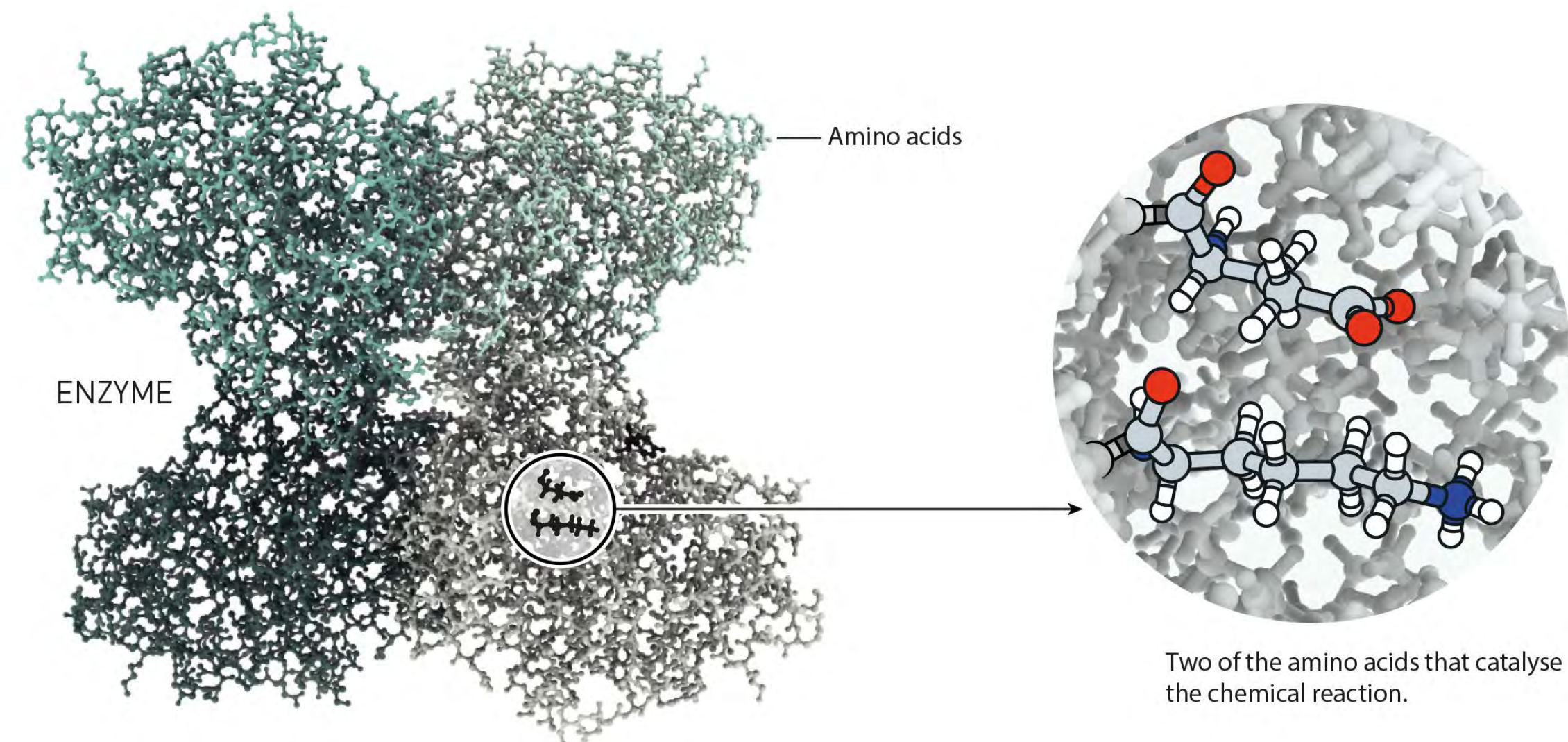


David W.C. MacMillan  
Född: 1968, Storbritannien



# Cheap, simple and eco-friendly

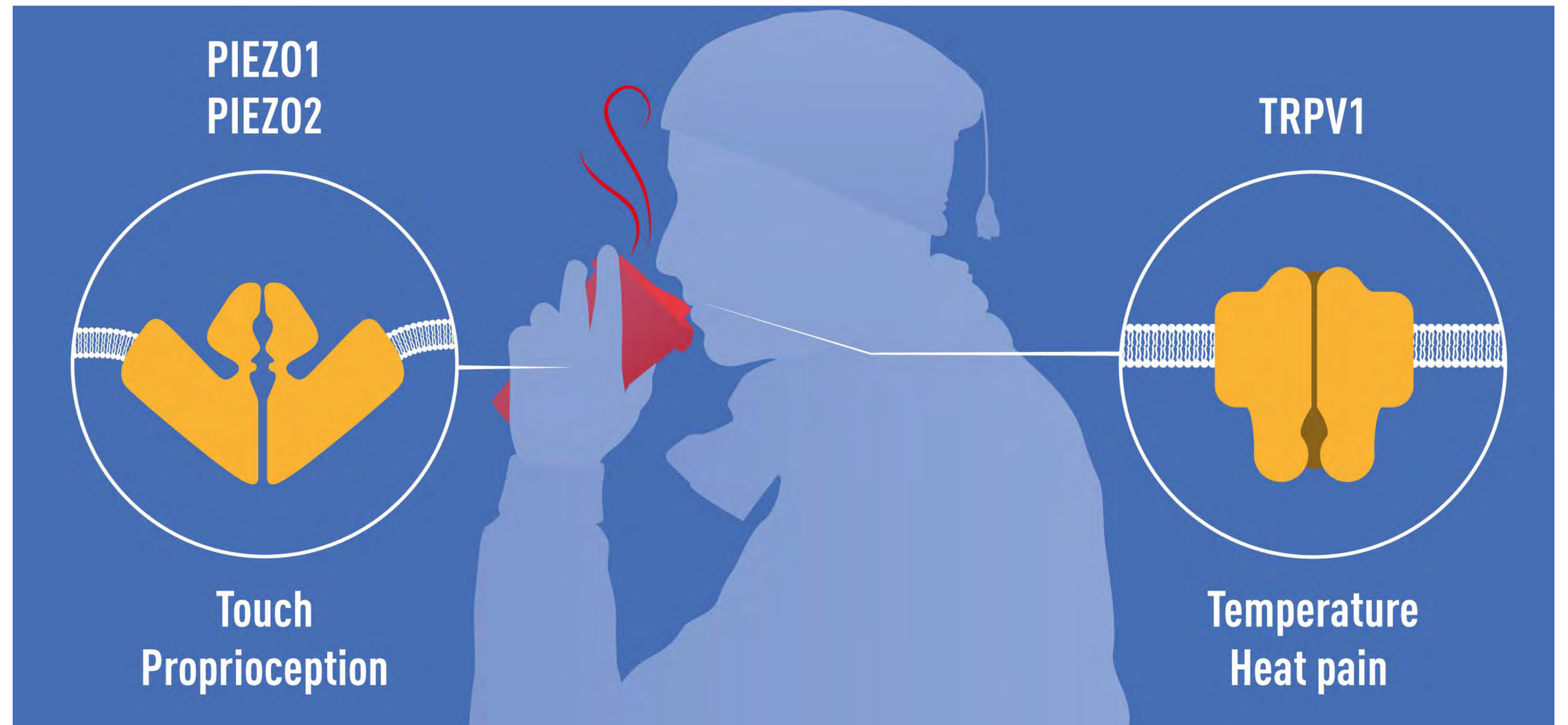
The laureates' tools are being used to produce pharmaceuticals more efficiently, more sustainably and more cheaply.





# The medicine prize 2021

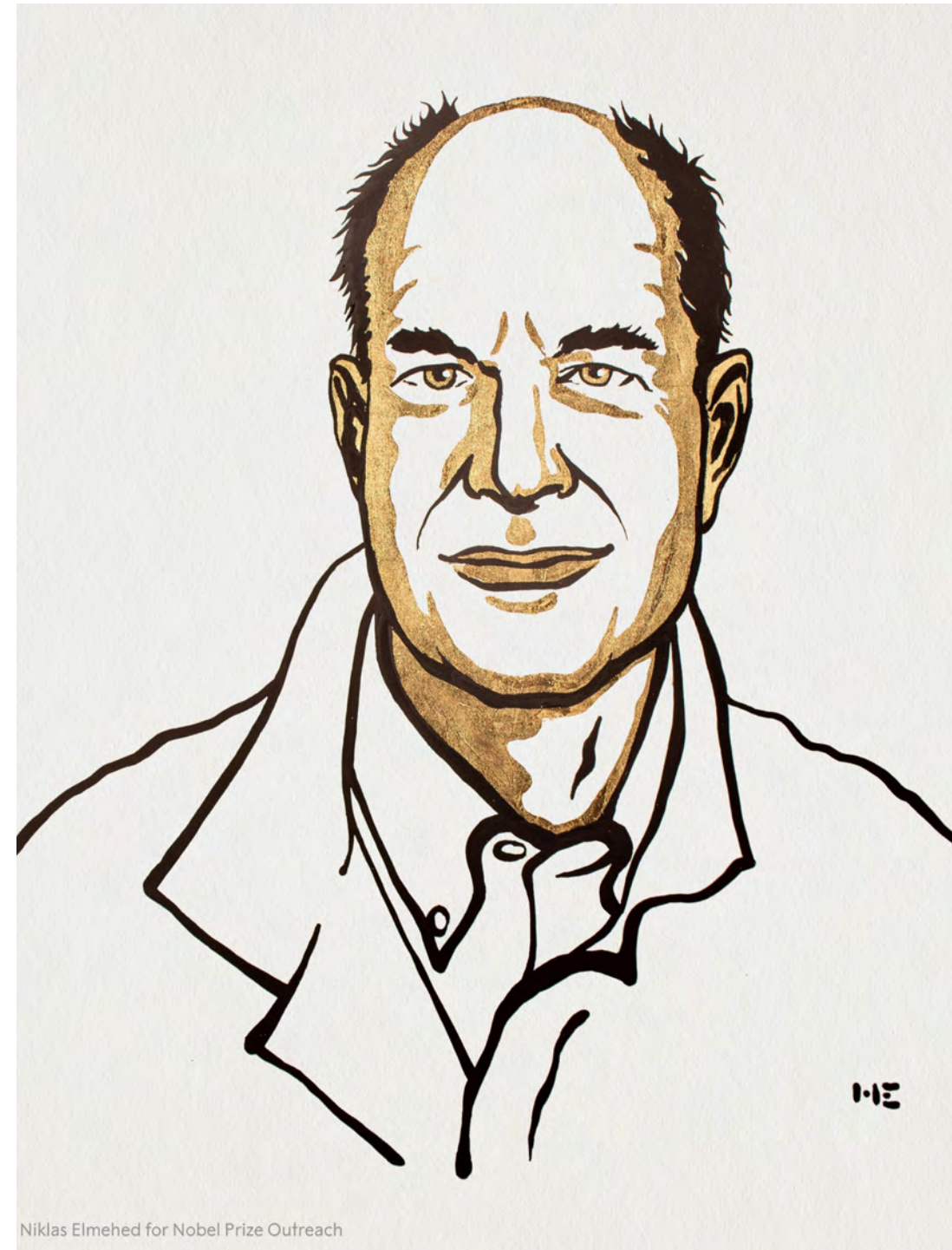
The discovery of how certain specific receptors react to temperature and touch allows us to explain our ability to perceive the world around us.





# The 2021 medicine laureates

“for their discoveries of receptors for temperature and touch”



David Julius  
Born: 1955, USA



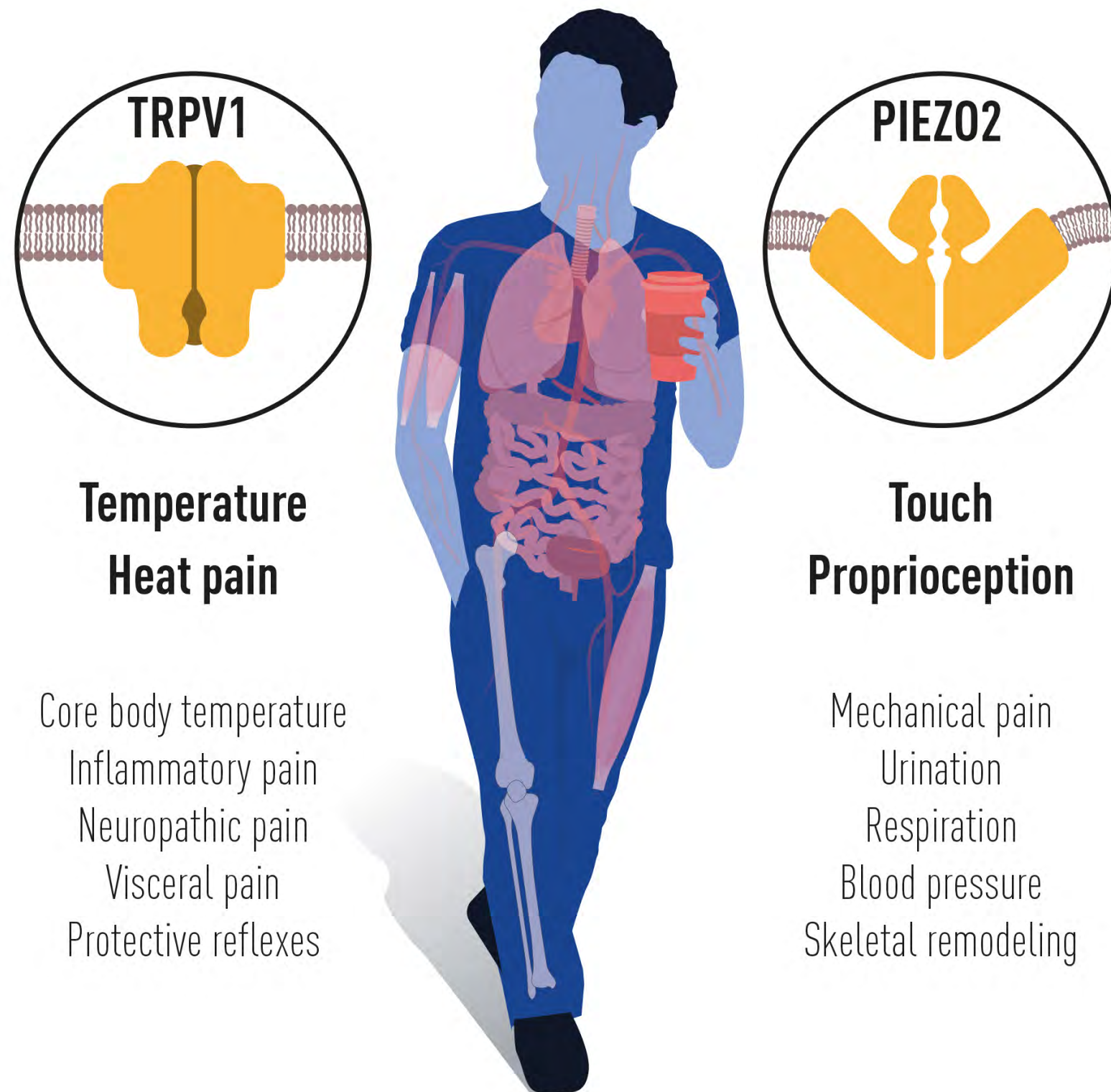
Ardem Patapoutian  
Born: 1967, Lebanon

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# For the greatest benefit to humankind

The laureates' discoveries can be used in further research to develop new treatment methods for various disease conditions, including chronic pain.





## The literature prize 2021



Abdulrazak Gurnah  
Born: 1948, Zanzibar

"for his uncompromising and  
compassionate penetration of the effects of  
colonialism and the fate of the refugee in  
the gulf between cultures and continents."



## The 2021 literature laureate



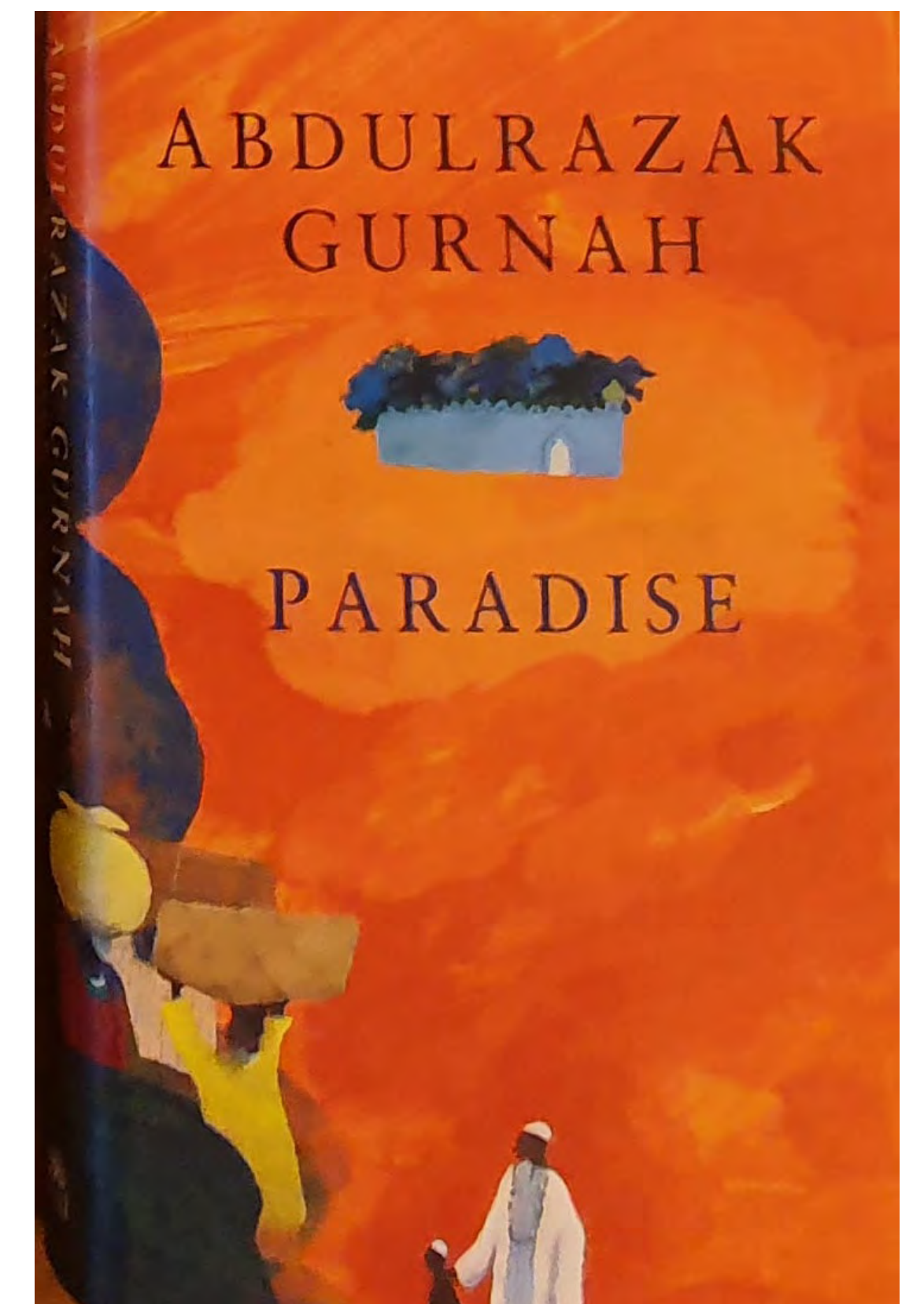
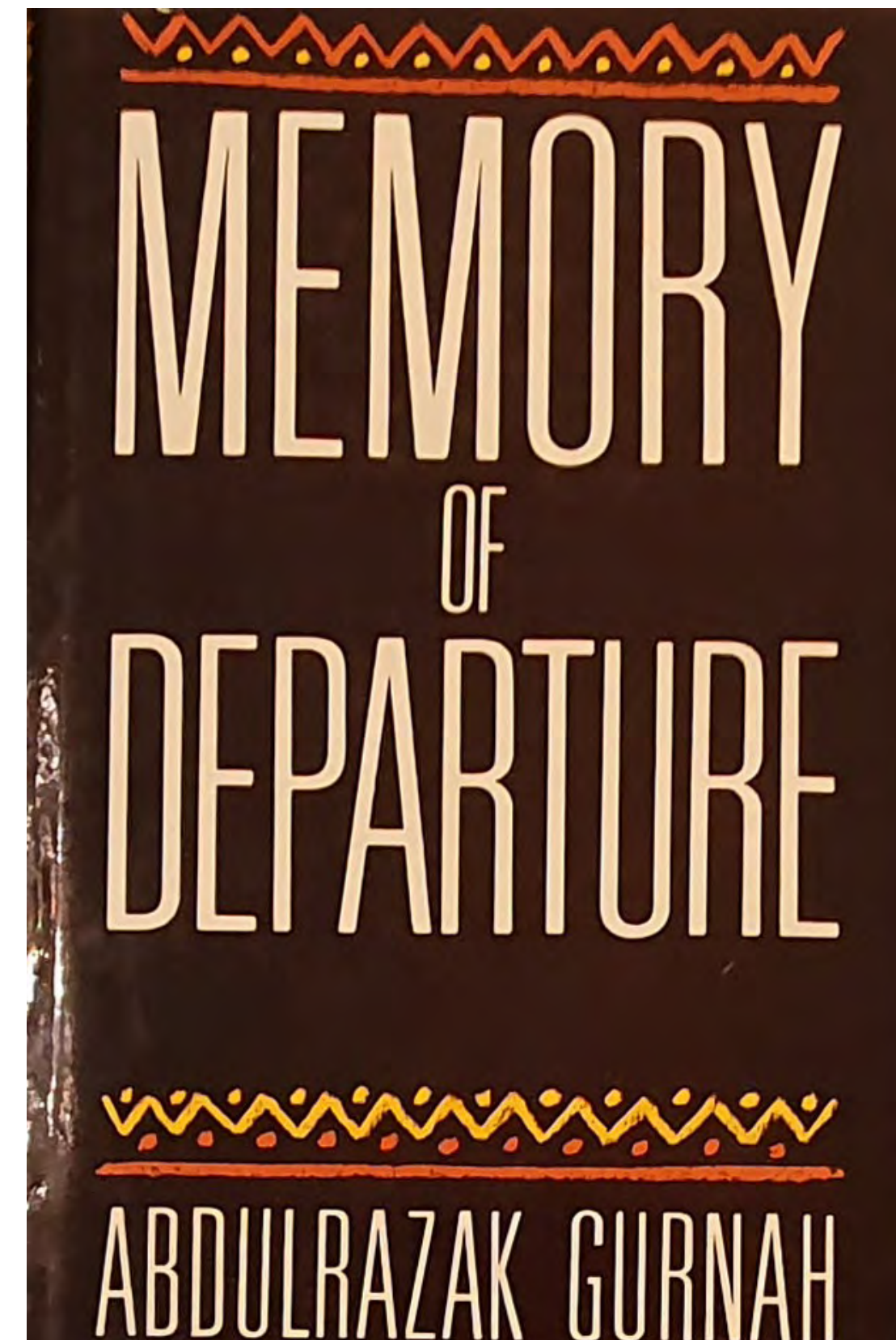
PHOTO: MARK PRINGLE

Abdulrazak Gurnah was born on Zanzibar but emigrated to England at the age of eighteen.



## Debut and breakthrough

In 1987, Gurnah made his debut with the novel *Memory of Departure*. His breakthrough as a writer came with the 1994 novel *Paradise*.





## The 2021 peace prize

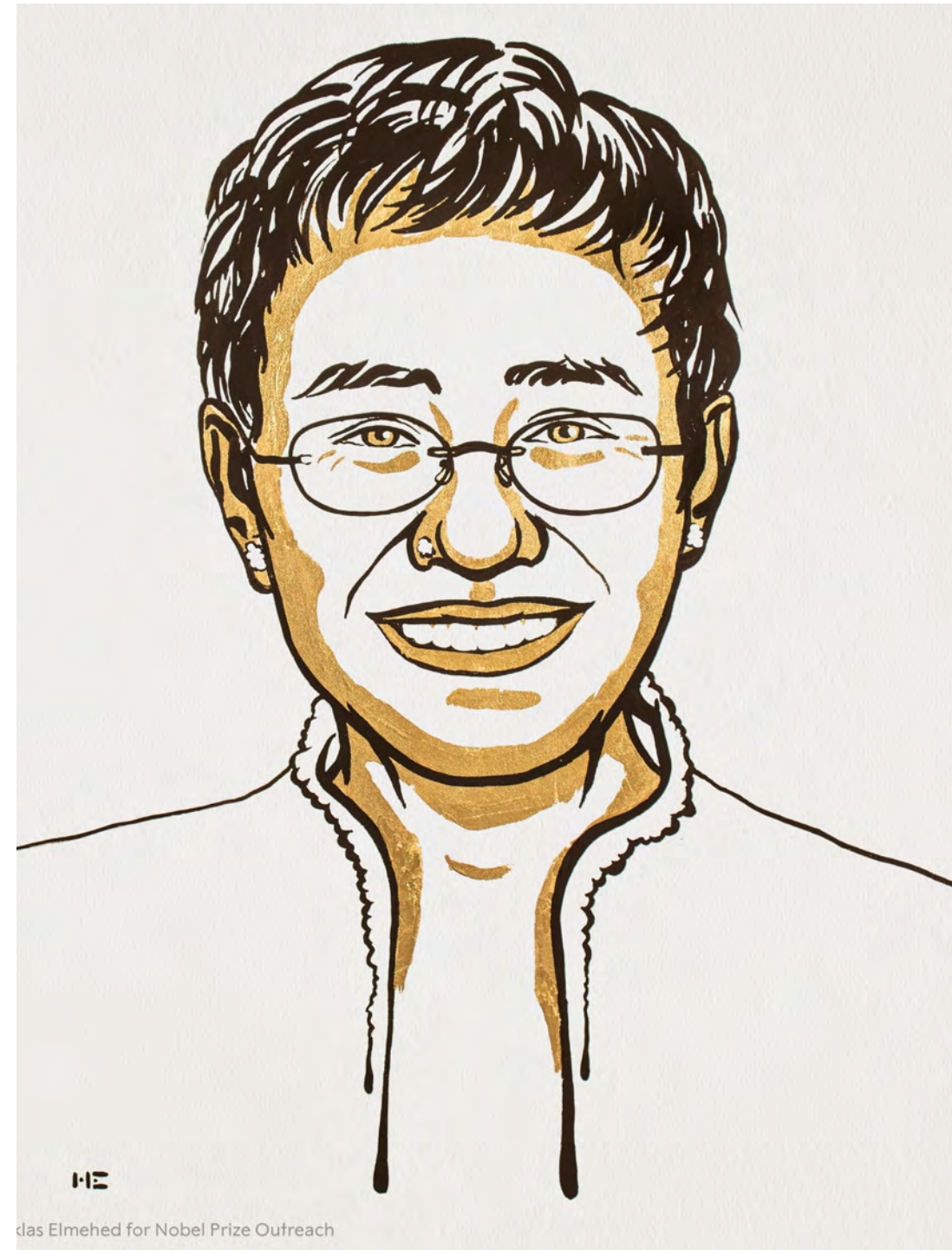


The prize calls attention to the work of journalists around the world and underscores the importance of free, independent and fact-based journalism.



## The 2021 peace laureates

“for their efforts to safeguard freedom of expression, which is a precondition for democracy and lasting peace”



Maria Ressa  
Born: 1963, Philippines



Dmitry Muratov  
Born: 1961, Russia



# Representative of all journalists who stand up for free speech



PHOTO: CREATIVE COMMONS

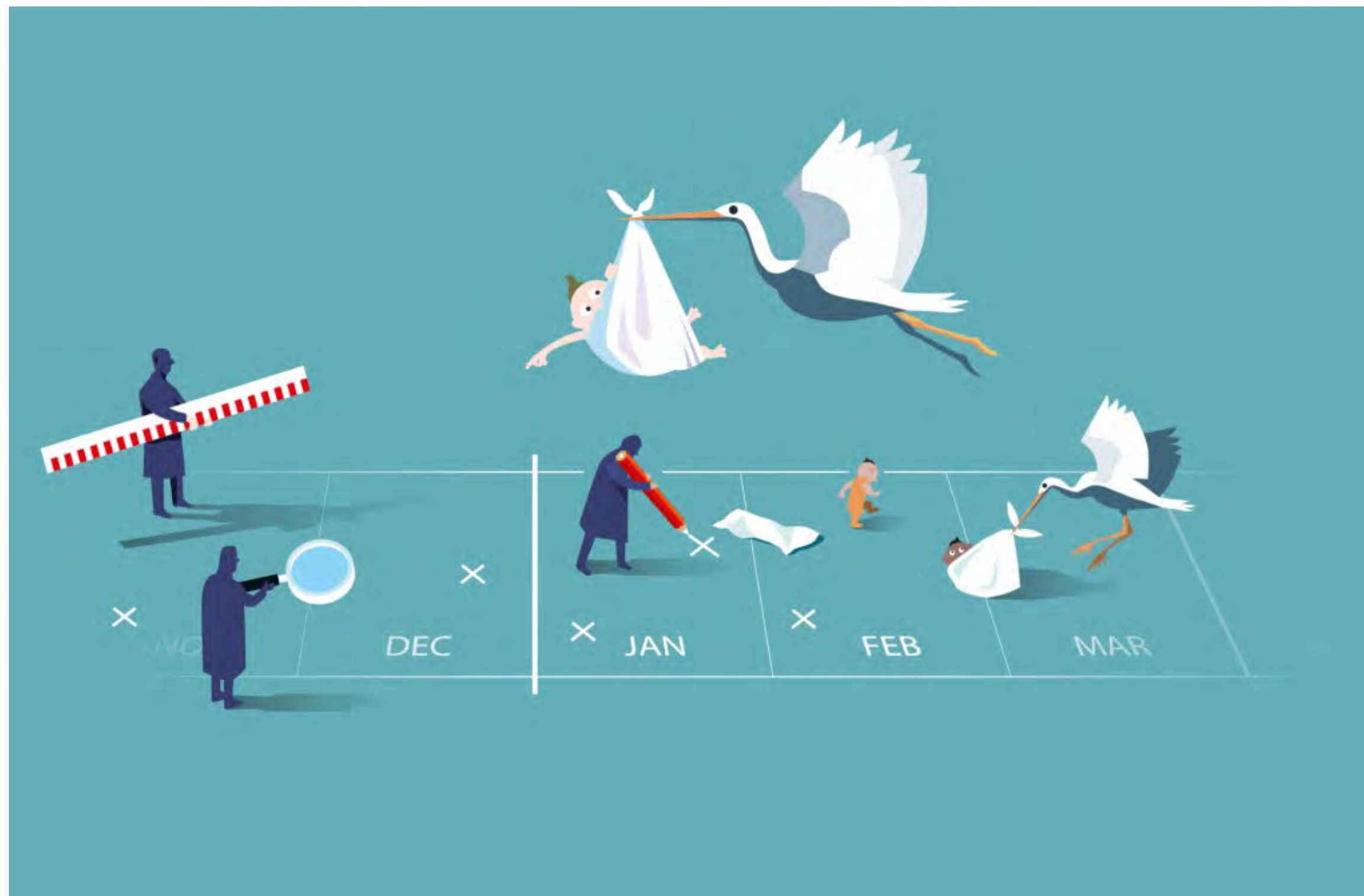


PHOTO OF MARIA RESSA: PRINCETON UNIVERSITY, DENISE APPLEWHITE



# The 2021 prize in economic sciences

The prize is awarded for research that shows how natural experiments can be used to answer important questions for society.





## The 2021 economic sciences laureates

David Card "*for his empirical contributions to labour economics*"

Joshua D. Angrist and Guido W. Imbens "*for their methodological contributions to the analysis of causal relationships*"



David Card  
Born: 1956, Canada



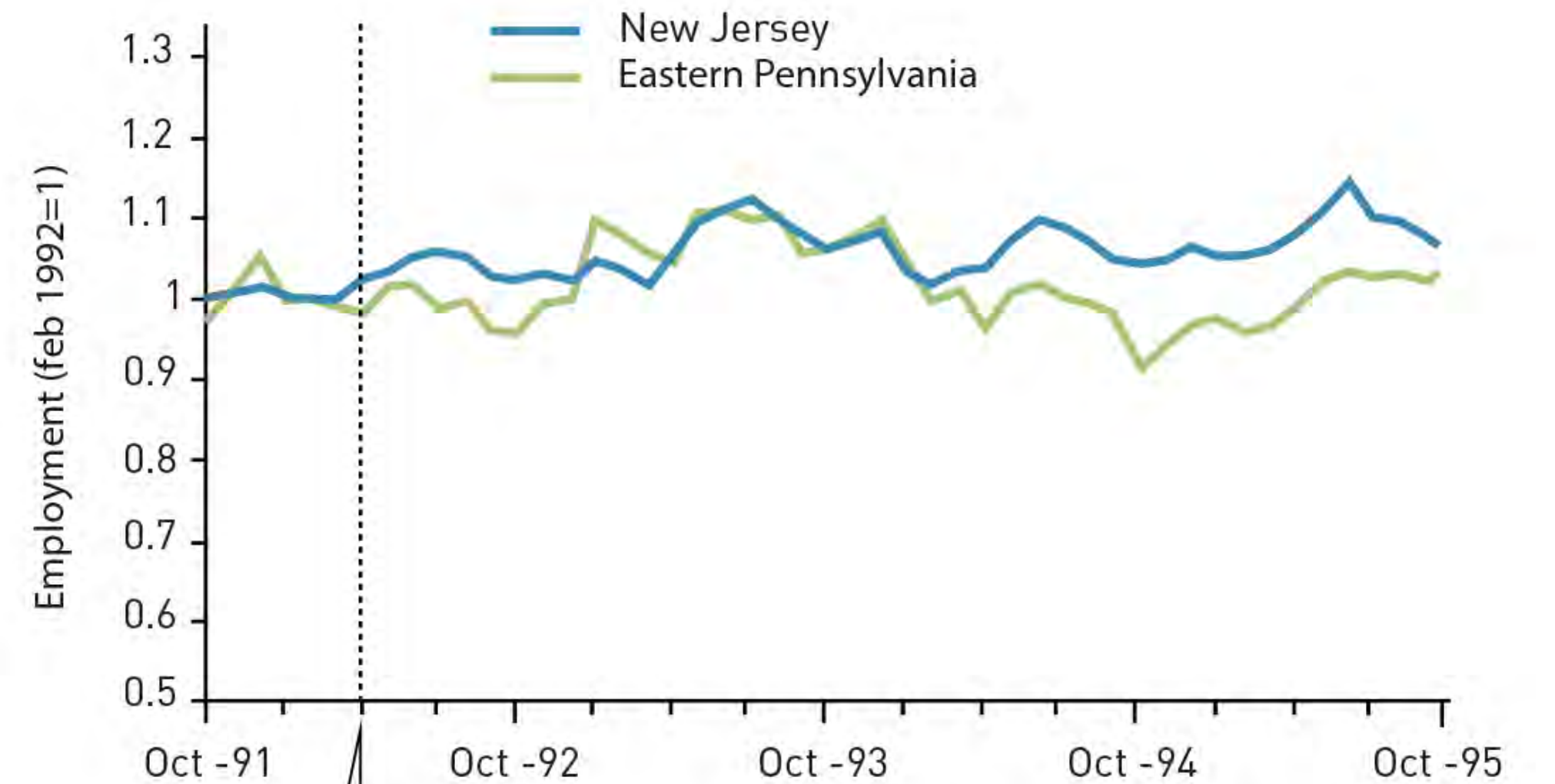
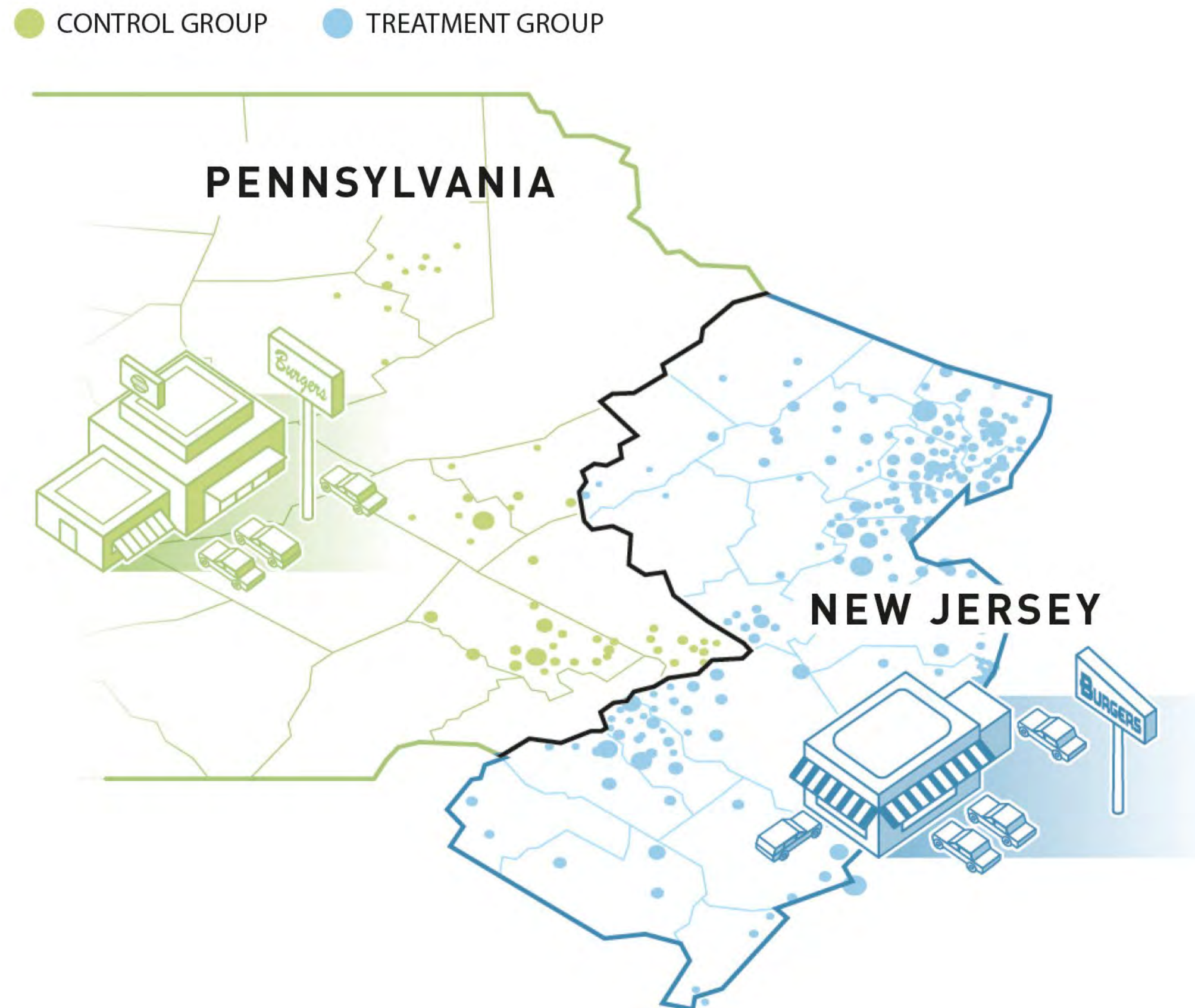
Joshua D. Angrist  
Born: 1960, USA



Guido W. Imbens  
Born: 1963, the Netherlands



# Natural experiments are experiment-like situations that arise in real life.



1 April 1992: The hourly minimum wage in New Jersey was increased from 4.25 dollars to 5.05 dollars. Despite this, employment in New Jersey was not affected.



# Awarding the Nobel Prize

On 10 December each year, the Nobel Prize is presented.

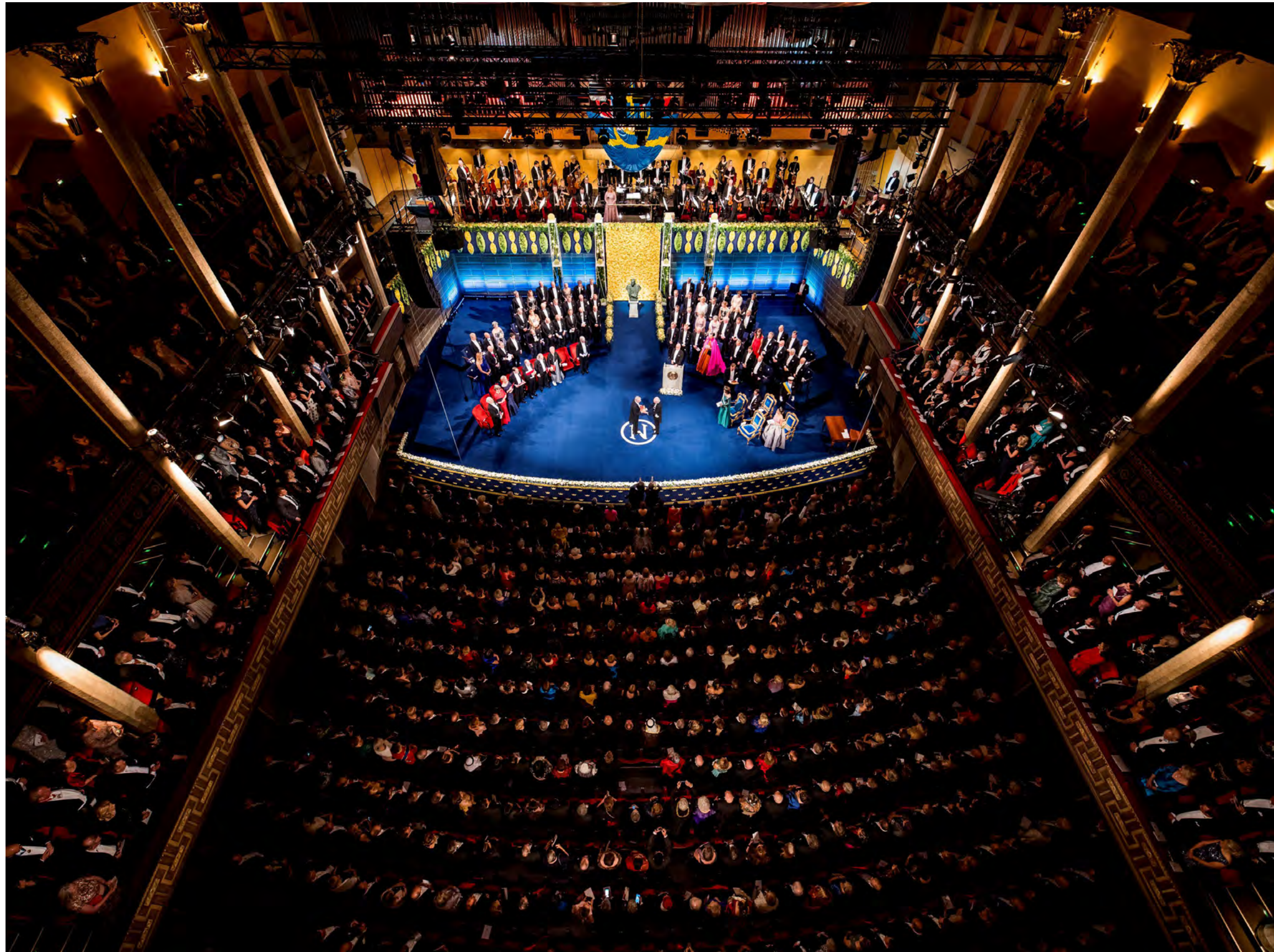


PHOTO: ALEXANDER MAHMOUD



THE  
NOBEL  
PRIZE

FOR THE GREATEST  
BENEFIT TO  
HUMANKIND

Nobel Prize Lessons