



# CORE

*Advancing Knowledge  
for Humanity*

## **Acceptance Message**

*In his message to the Academy, Carlos Nobre reflects on the urgency of climate action and the need to protect the Amazon, its biodiversity, and Indigenous communities.*

“I feel very honored to have been elected as a Fellow of the CORE Academy. I have dedicated more than 40 years of my scientific career to Natural Sciences, especially to climate change and the Amazon. Urgently we have to look for nature-based solutions to protect the largest tropical forest on Earth. The Amazon is very close to a tipping point and science must point out ways to save the Amazon forest, its rich biodiversity, and also its Indigenous Peoples and local communities.”

Carlos Nobre

*Fellow of CORE Academy, Division of Natural Sciences*

*From the acceptance message sent to the Academy on 29 September 2023*



29 August 2025

Mr David Li  
Secretary of the Academic Committee  
CORE Academy

Dear Secretary Li

I was delighted to receive from you the news of my election to Fellowship of the International CORE Academy of Sciences and Humanities. I am deeply honoured to receive this recognition, given particularly the stature of the Academy, and its illustrious fellowship.

I have had a lengthy career teaching and researching in the broad area of applied mathematics. I have over more than four decades forged collaborative ties with colleagues in the engineering and health sciences; it is precisely at the disciplinary intersections that the most challenging, interesting and important problems are to be found.

For almost two decades I have gone beyond my core scholarly activities to engage in activities aimed at the promotion of science (in the broadest sense of the word); the strengthening of scientific capacity in the developing world, particularly Africa; and the promotion and protection of academic freedom and scientific freedom. I am pleased to note that my membership of the Academy would provide further opportunities and avenues through which to pursue these objectives, and in so doing to contribute towards advancing the public good.

I extend my thanks and gratitude to the Academy for doing me this honour.

Sincerely

B. Daya Reddy  
Professor Emeritus

# 中国科学院长春光学精密机械与物理研究所

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Academic Committee  
CORE Academy

August 14<sup>th</sup>, 2025

## ACCEPTANCE LETTER

Dear Mr. Li,

It is my pleasure accepting the election to the CORE Academy.

I have worked in the past

- In fundamental research as principal scientist for Max-Planck-Society, building up the joint MPG-CNRS High Magnetic Field Facility in Grenoble
- In applied research for the Royal Radar Establishment in Gt. Malvern, a government institution in UK
- In device and instrumentation development at HP Labs in Palo Alto, USA
- As EE faculty member and director of the materials lab at Walter-Schottky Institute of Tech. Univ. of Aachen
- As the first applied physics chaired professor at TU Berlin and founding director of its Center of Nanophotonics
- As guest professor at UC Santa Barbara, USA; Technion Haifa, Isarel; KAU Jeddah, KSA
- And lately as the Founding Director of the Bimberg Chinese-German Center for Green Photonics of the CAS at CIOMP

An ancient Chinese philosopher, Laotse, said: „To reach the source of the river you need to swim against the “current”, which means “be inventive” and

he said “Quintessential of scientific research is to apply what you discovered”, meaning in modern language, do not only promise potential applications in a far future, but validate your discoveries now and transfer them for the use of the society.

I am certain that CORE Academy with its guiding vision: Advancing Knowledge for Humanity, and I add “now” will successfully follow the philosopher’s advice and guide the best brains of the world will to work together..

Thank you for the election

Sincerely,

Prof. Dr. Dr. h.c. Dresd. Dieter Bimberg

Fellow of the German Academy of Sciences, Leopoldina,

the US Academies of Engineering and Inventors, and the Russian Academy of Sciences

**AZƏRBAYCAN MİLLİ  
ELMLƏR AKADEMİYASININ  
PREZİDENTİ**



**THE PRESIDENT  
OF AZERBAIJAN NATIONAL  
ACADEMY OF SCIENCES**

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“24” 10 20<sup>23</sup> il/y.

To: Secretary-General  
Core Academy

Dear Secretary-General of Core Academy!

I express my great gratitude for your decision to elect me as a Fellow of the Core Academy. It is a great honor for me to be elected as a Fellow of the Core Academy, at the same time, it is a responsible commitment.

As a President of the Azerbaijan National Academy of Sciences, I will try to organize and develop relations between the academic organization I head and the Core Academy.

I am sending my CV and information about my general activity to get to know each other better.

Upon receipt of an official invitation, I consider it my duty to come to the Core Academy and get acquainted with your activities.

At the same time, we would be very pleased to welcome you in Azerbaijan at any time you wish.

With best regards,

Isa Habibbayli

President of the Azerbaijan National Academy of Sciences



**NATIONAL TECHNICAL UNIVERSITY OF ATHENS**  
**SCHOOL OF CHEMICAL ENGINEERING**  
**Department of Materials Science and Engineering**  
**Professor Doros N. Theodorou**

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9, Heroon Polytechniou Str., Zografou Campus, GR-157 80 Athens, Greece  
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1 September, 2025

Professor Raymond J. Wu  
Executive Vice Secretariat-General  
International Core Academy of Sciences and the Humanities

Dear Professor Wu,

I am writing to express my heartfelt thanks to you, the Academic Committee, and the Council for electing me as a Fellow of the CORE Academy in the Division of Engineering and Applied Sciences. I am deeply honored by your recognition and grateful for the opportunity to join a community of scientists and engineers whose creativity and contributions I greatly admire.

My journey as a chemical engineer began with a fascination for the properties of materials. As a high-school student at Athens College and later as an undergraduate at the National Technical University of Athens, I was captivated by the rigor of mathematics, the power of observation, and the elegance of physical sciences expressed through mathematical language. These interests, nurtured by gifted teachers and professors, led me to pursue graduate studies at MIT and later to academic positions at UC Berkeley, the University of Patras, and the National Technical University of Athens.

My research focuses on thermodynamics and molecular simulation of materials. Thermodynamics offers a structured framework that defines feasibility and guides optimal outcomes. Molecular simulations, grounded in statistical and quantum mechanics, help us understand how chemical structure, as shaped by processing, influences material properties and performance. Given the complexity of modern materials, multiscale modeling methods and algorithms have become essential for

bridging the nano and macro worlds. These tools now play a vital role in designing materials for applications in construction, energy, health, and the environment—areas where CORE Fellows have made transformative contributions. In our group, we have explored polymers in terms of phase behavior, thermal, mechanical, rheological, interfacial properties and permeability, as well as nanoporous materials such as zeolites for gas separation and catalysis.

As a CORE Fellow, I remain committed to advancing original research in thermodynamics and multiscale modeling, and to educating the next generation in physical chemistry, chemical engineering, and materials science. I look forward to engaging with fellow members of the CORE Academy to foster scientific innovation and global academic collaboration for the betterment of society.

Thank you once again for this great honor and for welcoming me into such a distinguished international community.

Yours very sincerely,



Doros N. Theodorou  
Professor

Academic Committee  
CORE Academy of Science and Humanities

Palma de Mallorca, August 6th, 2025

Dear Members of the Academic Committee,

*I feel deeply honored by my election as a Fellow of the Core Academy of Science and Humanities in the Division of Mathematics and Information Sciences. This recognition marks a meaningful milestone in a career devoted to the mathematical exploration of complex systems and their applications across disciplines.*

*My academic journey began in an underdeveloped country, where access to resources, opportunities, and international collaboration was often limited. Overcoming these challenges has shaped my perspective and deepened my commitment to advancing science in ways that are both rigorous and inclusive.*

*My research has focused on the mathematical foundations of complex networks, where I have contributed tools and concepts now widely used in interdisciplinary studies. I developed the mathematical theory of network communicability, which has found broad applications, particularly in the analysis of brain networks. I introduced the Estrada index, a spectral measure now commonly employed in fields ranging from protein folding to mathematical chemistry and general network theory. My work on subgraph centrality provided new ways to quantify the importance of nodes in networks based on their participation in closed walks.*

*Additionally, I pioneered spectral scaling and the development of  $d$ -path and hubs-biased Laplacians, approaches that have advanced our understanding of long-range interactions and anomalous diffusion processes. More recently, I introduced the communicability geometry framework, enabling the embedding of networks into geometric spaces to study phenomena such as traffic flows and epidemic spreading. I have also integrated fractional calculus with dynamic network modeling to address challenges in various interdisciplinary domains.*

*I am grateful for this recognition and see it as a strong encouragement to continue contributing to the advancement of knowledge at the intersection of mathematics, engineering, and the applied sciences.*

Sincerely,

A handwritten signature in black ink, appearing to read 'Ernesto Estrada', with a stylized flourish at the end.

Ernesto Estrada



**CORE**  
*Advancing Knowledge  
for Humanity*

## **Acceptance Message**

*In his acceptance message to the Academy, Herbert Gleiter reflects on his pioneering work in nanostructured materials and on the emergence of a major new field that has reshaped modern materials science and technology.*

“I feel very honored to have been elected as a Fellow of the CORE Academy. My research has been focused to a large extent on the discovery and the development of new kinds of crystalline and non-crystalline - so-called nanostructured - materials which are characterized by novel atomic structures and novel properties and thus opening the door to a world of new nanostructured materials based technologies. As a result, several hundred thousand papers have been published on nanostructured materials so far and several Research Centers have been founded worldwide in this new field.”

Herbert Gleiter

*Fellow of CORE Academy, Division of Natural Sciences*

*From the acceptance message sent to the Academy on 7 October 2023*



## Multidisciplinary AI Research Center (MARC)

University of Peradeniya, Sri Lanka

Faculty of Engineering

Prof. E.O.E Pereira Mawatha, Peradeniya



Telephone: +94 77 714 6979

e-mail: marc@eng.pdn.ac.lk

TO the Secretary General  
Core Academy

Dear Secretary General

I am deeply honoured to accept my nomination as a Fellow of the Core Academy. My heartfelt gratitude goes to those who nominated me, recognizing my contributions to the advancement of research. I am currently acting as Director of the Multidisciplinary AI Research Centre at the University of Peradeniya. Our mission aligns seamlessly with the Academy's vision of Advancing Knowledge for Humanity. We drive impactful dissemination programs, train young engineers, and conduct pioneering multidisciplinary research, with my work focusing on integrating AI with smart grids to optimize renewable energy systems.

A significant challenge we face in a developing nation is limited access to computational resources, particularly GPU infrastructure, which hinders our research capabilities. I am eager to foster collaborations with the Core Academy and its partner institutions to access advanced GPU resources, enabling mutually beneficial research that accelerates AI innovation. Such partnerships could empower our team to contribute meaningfully to global advancements in sustainable technology.

I am excited to actively engage in Core Academy initiatives, collaborating with fellow members to advance our shared mission. By leveraging collective expertise and resources, I am committed to driving impactful research and nurturing the next generation of innovators. Thank you once again for this prestigious opportunity. I look forward to contributing to the Academy's transformative efforts in advancing knowledge for humanity.

Prof. Janaka Ekanayake

BScEng(Hons), PhD, FIEEE (USA), FIET (UK), FNAS (SL), FIESL, CEng

Senior Professor and Chair of Electrical and Electronic Engineering, and

Director/University Research Council, University of Peradeniya

Director/Multidisciplinary AI Research Centre

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THE COUNCIL OF UZBEKISTAN PHYSICISTS

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08.09.25 № N-10

The Academic Committee

The CORE Academy of Sciences and Humanities

August 3, 2025

Dear members of the Academic Committee,

I was very grateful to hear that I had been elected a member of the International CORE Academy of Sciences and Humanities. My gratitude stems not only from the fact that my modest scientific activities and work on the development of physical research have been recognized by such a serious association of outstanding scientists from many countries as the CORE Academy of sciences and humanities, but also from the fact that now I have new opportunities to develop international scientific cooperation in many areas of activity, primarily in physical research and the dissemination of physical knowledge in society.

It is obvious that the global challenges facing humanity—climate change, limitations in natural resources, environmental pollution, etc.—cannot be solved by individual countries alone and will require openness and a higher level of international cooperation across all spheres of human activity. It is obvious that solving these problems requires, first and foremost, scientific and technological breakthroughs, the consolidation of efforts by the international scientific community, and the concentration of efforts on the most important and promising areas of research in the natural sciences and humanities. It is also important that the scientific community participates in realization of their scientific results into the breakthrough economic innovations.

The CORE Academy of Sciences and Humanities has achieved a great deal in a short period of time – it has brought together scientists from different countries to tackle important issues related to global challenges facing humanity and has established appropriate platforms for this purpose, such as specialized CORE research and innovation centers. It is clear that this activity must be continued.

I fully share the goals of the Core Academy of Sciences and Humanities. I will be happy to participate in various initiatives and projects of the Academy. I will disseminate information about the activities of the Core Academy in order to attract talented and promising scientists, as well as scientific establishments to its activities. As Chairman of the Council of Physicists of Uzbekistan, I will try to involve the Core Academy in promising projects in our country. I am looking forward to work as a Fellow of the CORE Academy of Sciences and Humanities.

Yours very sincerely,



Kadir Gulamov

Chairman of the Council of Physicists of Uzbekistan,  
Fellow of the CORE Academy of Sciences and Humanities

# Turing Machines Inc.

Dr. Kees A. Schouhamer Immink  
President, Turing Machines Inc.  
Willemskade 15  
3016 DK Rotterdam  
The Netherlands

To the Fellows and Council of the Core Academy,  
It is with deep gratitude and sincere humility that I accept election to the Core Academy. To be welcomed into a fellowship dedicated to scientific advancement and global intellectual collaboration is both a personal honour and a profound affirmation of the values that have shaped my life's work.

My academic journey began not with a clear destination, but with a relentless curiosity. That curiosity eventually led me to develop practical applications of coding theory that have found their way into billions of devices across the globe. From Compact Discs to Blu-ray, the codes we developed were never merely technological solutions; they were answers to the fundamental question of how we make knowledge resilient.

The Core Academy's mission, to foster interdisciplinary excellence, to support early-career scholars, and to champion integrity in research, is one I wholeheartedly support. In an era where information flows more freely yet more precariously than ever before, our responsibilities as scientists have grown correspondingly weighty. We must not only discover but also defend. We must nurture talent and ensure that the spirit of inquiry remains vibrant.

To students and young scholars entering the field: embrace both the rigor of science and the joy of discovery. Do not be deterred by complexity. The problems worth solving often reveal their beauty only after long patience.

I look forward to contributing to the Academy's initiatives, supporting collaborative efforts across disciplines, and helping in mentoring the next generation of thinkers and builders. May we all remain restless in our pursuit of knowledge, and generous in its sharing.

With gratitude and resolve,  
**Kees A. Schouhamer Immink**



南方科技大学  
SOUTHERN UNIVERSITY OF SCIENCE AND TECHNOLOGY

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28 January 2026

Mr David Li  
Secretary of the Academic Committee  
CORE Academy

Dear Secretary Li,

I am pleased to confirm my acceptance of the election to Fellowship of the International CORE Academy of Sciences and Humanities. I am deeply honored by this recognition, especially given the esteemed reputation of the Academy and its distinguished community of fellows.

My academic career has been dedicated to advancing research in wide-bandgap semiconductor materials and devices, advanced display technologies, AR/VR and glasses-free 3D systems. Over the years, I have worked extensively across interdisciplinary boundaries, collaborating with researchers in engineering, materials science, and photonics to address complex technological challenges.

In addition to my research and teaching roles, I have been actively involved in promoting scientific exchange and capacity building, particularly between Asia and the global scientific community. I have also contributed to academic and professional societies, including serving as a Fellow of several international organizations such as IEEE, OSA, SPIE, SID, and IoP. I believe that my membership in the Academy will further enable me to support the advancement of science, foster international collaboration, and contribute to the global public good through research and education.

I extend my sincere gratitude to the Academy for this honor and look forward to contributing to its mission.

Sincerely,

Xiao Wei Sun  
Chair Professor  
Southern University of Science and Technology  
Executive Dean, Institute of Nanoscience and Applications, SUSTech

22 January 2026

Mr David Li  
Secretary of the Academic Committee  
CORE Academy

Dear Mr Li,

I would like to thank you for informing me about the election as Fellow of the International CORE Academy of Sciences and Humanities. Many thanks also to the Academic Committee, and the Academy Council for this great honour, recognising the many years of hard work and dedication into the advancement and use of Renewable Energy Systems.

For more than 35 years, I am actively involved in teaching Heat and Mass Transfer and Solar Energy Engineering. My research is mainly focussed in the area of Solar Energy and particularly the development of various types of solar thermal collectors and systems, solar steam generating systems, desalination, photovoltaics, geothermal energy and absorption cooling systems. I am very happy that lately many people around the world are dealing with renewables and a new record with respect to the installation of these systems is noted every year. It is unfortunate that this record is mainly connected to various military conflicts and the harsh consequences connected to climate effects which affect many people. However, as a positive thinking person, I believe that these events can give humanity an incentive and a good opportunity to move away from fossil fuels which affect severely the environment of our planet.

I am a person involved in renewables for a long time, as demonstrated by the large number of publications on the subject in books, book chapters, international scientific journals and refereed conference proceedings. This is also evidenced by the various editorship roles I have for many years. I am now the Editor-in-Chief of *Renewable and Sustainable Energy Reviews* journal, the top journal of the field. I am also Editor-in-Chief Emeritus of *Renewable Energy* after acting for almost 11 years as Editor-in-Chief of the journal and Honorary Editor of *Energy*, after another 10 years serving as Deputy Editor-in-Chief handling all papers related to renewables. I am also the editor of the book *Artificial Intelligence in Energy and Renewable Energy Systems*, published by Nova Science Inc., co-editor of the book *Soft Computing in Green and Renewable Energy Systems*, published by Springer, editor of the book *McEvoy's Handbook of Photovoltaics*, published by Academic Press of Elsevier and author of the books *Solar Energy Engineering: Processes and Systems*, *Thermal Solar Desalination: Methods and Systems*, and *Green Hydrogen Energy Systems*, all published by Academic Press of Elsevier. The quality of this work enabled me to appear for consecutive years in the Stanford University World Top 2% Scientist, and to be ranked as a Global Top 0.05% Scholar, by ScholarGPS.



Cyprus  
University of  
Technology

As a CORE Fellow, I remain committed to advancing original research in heat transfer and the development of new renewable energy systems so as to promote further the sustainable use of energy for a better living environment.

Thank you once again for this great honour and the opportunity to be member of such a high level distinguished international scientific community.

Sincerely yours,

A handwritten signature in blue ink, appearing to read 'S. Kalogirou'.

Professor Soteris Kalogirou, D.Sc.  
Department of Mechanical Engineering and Materials Sciences