



UNIVERSITY OF DELAWARE
ENGINEERING

DEPARTMENT OF CHEMICAL & BIOMOLECULAR ENGINEERING

CENTER FOR CATALYTIC SCIENCE AND TECHNOLOGY

VIRTUAL SEMINAR



OCTOBER 18, 2022 | 9:00 AM (EDT)

DIMITRIOS NIAKOLAS

Foundation for Research and Technology, Hellas,
Institute of Chemical Engineering Sciences

<https://udel.zoom.us/j/94251493353>

PHYSICAL CHEMISTRY & CHEMICAL PROCESSES WITH ADVANCED ELECTRO-CATALYSTS FOR ENERGY/ENVIRONMENT MANAGEMENT WITH FUEL CELLS/ELECTROLYSERS UNDER HIGH TEMPERATURE (SOFCs/SOECs) AND HIGH PRESSURE (HP WE)

The European Commission has defined as one of its main targets the reduction of Greenhouse Gas (GHG) emissions by 80-95% until 2050, in comparison to the 1990 levels. Fuel and Electrolysis cells are one of the key technologies for the realization of this target. The specific technology is the connecting link among the fields of energy & environment and has the potential to play a key role for the EU strategic plan towards energy transition and energy security in a H₂ economy/society. Some of the Fuel/Electrolysis cells research fields are: (●) conversion of chemical energy to power and heat in small and large scale, (●) energy storage (via conversion of power to H₂, syn-gas/chemical products), (●) integrated use of bio-gas, (●) balancing the operation of RES, (●) application flexibility in both urban and decentralized areas.

The seminar will focus on research activities related to “Physical Chemistry & Chemical Processes with Advanced Electro-catalysts for Energy/Environment management with fuel cells/electrolysers under high temperature (SOFCs/SOECs) and high pressure (HP WE)”, targeting to the understanding, development and commercial exploitation of the specific technology. The presented research and development deals with new materials, cells/stacks and reactors, as well as with the deeper understanding of the occurring electro-catalytic processes through innovative approaches. Furthermore, the activities focus on the upgrade of the Technology Readiness Level, (TRL) to TRL6. This is ensured through the participation in EU and National-funded projects and the cooperation with important research/academia beneficiaries, as well as with some of the key EU-SMEs, which are active towards the commercial exploitation of the technology and the formation of the corresponding market.

BIO: Dr., MBA, Dimitrios K. Niakolas (m), Chemist, is an associate research scientist at FORTH/ICE-HT. He holds a MSc diploma in Business Administration and a PhD diploma in Chemistry. His research interests focus on the areas of heterogeneous catalysis, solid state electrochemistry (ceramic materials, solid oxide fuel cells, as well as low and high temperature electrolysis technologies), chemical and electrochemical kinetics. Moreover, his areas of expertise cover the fields of strategic management of innovation, competitiveness and technology evaluation. He has co-authored 36 publications (ORCID: <https://orcid.org/0000-0002-1365-413X>) in peer-reviewed international scientific journals and he is one of the responsible persons for the preparation, scientific progress and reporting in 7 European funded projects including the: “MatSILC” [033410], “SUSHGEN” [238678], “ROBANODE” [245355], “T-CELL” [298300], ESA contracts for the “Development of a closed loop regenerative PEM Fuel Cell System”, “SElySOs” [671481] and “NewSOC” [874577].

NOTE: CCST SEMINARS/ZOOMS are scheduled at **E.S.T./E.D.T.**