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	Session: **Thin Films** CHAIR: Dr. Duncan Paul Fagg	Session: **Nanotechnology, Ceramics** CHAIR: Dr. Andrei Kovalevsky
14:00-14:30	***Keynote talk*** Aneeta Jaggernauth (**O42**) **Interfacial Integrity Enhancement of Atomic Layer Deposited Alumina on Boron Doped Diamond by Surface Plasma Functionalization** *CICECO, Department of Materials and Ceramic Engineering, University of Aveiro, 3810-193 Aveiro, Portugal*	***Keynote talk*** Dr. Indrani Coondoo **(I10)** **Phase transition studies in lead-free 50BCT-50BZT ceramics** *Department of Physics & CICECO-Aveiro Institute of Materials, University of Aveiro, Portugal*
14:30-15:00	Session: **New Energy Materials** CHAIR: Dr. Duncan Paul Fagg Bodhoday Mukherjee (**O17**) **Electrical Transport Properties of Nickel Nanoparticles** *UGC-DAE Consortium for Scientific Research, University Campus, Khandwa Road, Indore-452001, India*	Martina Kocijan (**O19**) **The factors affecting the photocatalytic degradation of organic pollutants under visible irradiation using TiO2/rGO nanocomposites as photocatalysts** *Department of Materials, Faculty of Mechanical Engineering and Naval Architecture University of Zagreb, Ivana Lučića 1, 10000 Zagreb, Croatia*
15:00-15:30	Session: **Hydrogen and Fuel Cell Science** CHAIR: Dr. Duncan Paul Fagg ***Keynote talk*** Prof. Dr. Yaremchenko (**I21**) **Donor- and transition metal-substituted SrTiO3: Relevant issues in the development of ceramic components for SOFC anodes** *CICECO – Aveiro Institute of Materials, Department of Materials and Ceramic Engineering, University of Aveiro, Portugal*	Milan Vukšić (**O20**) **Spark plasma sintering of alumina ceramics with addition of waste alumina powder** *Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb, Croatia*
15:30-16:00	Coffee break	

I21. Donor- and transition metal-substituted $SrTiO_3$: Relevant issues in the development of ceramic components for SOFC anodes

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Due to phase stability requirements, the choice of alternative perovskite-type materials for ceramic SOFC anodes is essentially limited to chromite-, molybdate-, vanadate- or titanate-based systems. Donor-doped $SrTiO_3$ combines remarkable stability in both oxidizing and reducing conditions, substantial electronic conductivity, and good prospects for inhibition of carbon deposition and sulfur-tolerance.

The present lecture gives a brief overview and a comparative assessment of a variety of strontium titanate-based solid solutions as fuel electrode materials with emphasis on the defect chemistry, reducibility and corresponding effects on the electrical properties, thermomechanical compatibility with solid electrolytes, and electrochemical activity. The exemplified oxide systems are (Sr,Ln)TiO_3 (Ln = La-Yb), (Sr,Pr)TiO_3, Sr(Ti,Ta)O_3 and Sr(Ti,V)O_3 series including nomically cation-stoichiometric and A-site deficient formulations [1-4].

References

[1] A.A. Yaremchenko, S.G. Patrício, J.R. Frade, *Journal of Power Sources*, **245**, 557 (2014).
[2] A.A. Yaremchenko, E.N. Naumovich, S.G. Patrício, O.V. Merkulov, M.V. Patrakeev, J.R. Frade, *Inorganic Chemistry*, **55**, 4836 (2016).
[3] J. Macías, A.A. Yaremchenko, E. Rodríguez-Castellón, M. Starykevich, J.R. Frade, *ChemSusChem*, **12**, 240 (2019).
[4] A.A. Yaremchenko, J. Macías, A.V. Kovalevsky, B.I. Arias-Serrano, J.R. Frade, *Journal of Power Sources* (2020).