NOMATEN Online Seminar

Time: 1 PM
Location: gotomeeting room - https://meet.goto.com/NCBJmeetings/nomaten-seminar
Seminar date: October 15th, 2024

Title: Spark Plasma Sintering – technology for manufacturing of advanced materials
Speaker name: Dr. Marcin Chmielewski

Speaker affiliation: Łukasiewicz Institute of Microelectronics and Photonics, Warsaw, Poland

Abstract: Issues related to the design and manufacturing of new materials are a driving force behind the development of the modern world. Using the available materials in their natural form would significantly limit the possibility of their use in modern practical solutions. Therefore, progress has been observed for years in the area of miniaturization, strictly connected to the manufacturing technologies and use of new material solutions. A number of technologies are currently available to consolidate powders by means of the sintering process (e.g. Pressureless Sintering, Hot Pressing, Microvawe Sintering, Hot Isostatic Pressing, or Spark Plasma Sintering). The process of the synthesis of the materials should ensure a high degree of material density, homogeneity of structure, reproducibility, short time, low price, scalability for mass production. Electrically assisted sintering technologies, commonly referred to as Field Assisted Sintering Technique or Spark Plasma Sintering, are becoming more widely used. The technological capabilities of the apparatus available at the Łukasiewicz Institute of Microelectronics and Photonics will be presented on selected examples of functional materials.

Bio: Marcin Chmielewski is a graduate of the Faculty of Production Engineering, Warsaw University of Technology. He is an employee of the Łukasiewicz Research Network of the Institute of Microelectronics and Photonics (formerly: Institute of Electronic Materials Technology since 1999). In 2005, he defended his doctoral thesis and obtained the title of doctor of technical sciences in the discipline of Materials Engineering. By the decision of the Scientific Council of the Institute of Fundamental Technological Research of the Polish Academy of Sciences in January 2019, he was awarded the degree of doctor habilitated. He has also been employed at the NCBJ Materials Research Laboratory since 2021, where he is responsible for conducting research on the thermal properties of advanced materials. His research interests are mainly focused on the fabrication and characterisation of composite materials, with particular emphasis on the physicochemical phenomena occurring at the metal-ceramic interface. His scientific output includes more than 100 publications, of which more than 70 in journals from the JCR list.