



## KONWERSATORIUM INSTYTUTU FIZYKI UMCS

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### *“Thermal treatment of materials on short time scales”*

Important technological developments of our time such as the energy transition or digitalization require new materials and more efficient manufacturing processes. The processes of ultra-short time annealing such as flash lamp annealing (FLA) and laser annealing have the potential to make an important contribution. During such processes high temperatures are applied for very short times (nano- to milliseconds), so that only near surface regions of the material are exposed to the maximum temperature. Compared to conventional thermal treatments, ultra-short time annealing enables energy and process time savings, the use of temperature-sensitive substrates, and the synthesis of new materials in thermal non-equilibrium.

The talk is divided into two parts. After an introduction, the first part discusses the main features of FLA in comparison with other short time annealing techniques, namely rapid thermal annealing and laser annealing. Special focus is set on temperature and its determination, as this is a complex and challenging issue on short time scales. The second part deals with various examples of applying FLA to materials, ranging from semiconductor applications over printed electronics to energy materials for batteries.

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Uprzejmie zapraszam wszystkich pracowników, doktorantów i studentów Instytutu Fizyki.

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