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Defence announcement **Public Defence on 10 Nov 2023**

Biomolecular-based materials for future technologies

Title of the doctoral thesis	Hybrid Architectures at the Nanoscale: Constructing Materials through Electrostatic Interactions
Content of the doctoral thesis	In this doctoral dissertation, the investigation into the marvels of biomolecular-based materials, including DNA origami and protein cages, unfolds to shape nano- and microscale functional materials. The research centers on electrostatic self-assembly, providing meticulous control at the atomic level with applications spanning nanomedicine, optoelectronics, and water treatment. The dissertation introduces biohybrids for both DNA and protein-based materials, highlighting the successful development of DNA biohybrid materials with enhanced optical properties, stability, and resistance to aggregation. Additionally, it presents protein crystalline assemblies with the targeted removal of harmful substances from water and the creation of BioLEDs. These findings mark a substantial leap forward in the field, laying a robust foundation for pioneering solutions across diverse sectors. This research contributes to the broader scientific landscape by establishing a clear connection between these intricate biomolecular-based materials and synthetic counterparts. Through the integration of electrostatic self-assembly principles, the dissertation propels our understanding of nanomaterial design, opening avenues for innovative applications.
Field of the doctoral thesis	Chemical Engineering (Bionanotechnology)
Doctoral candidate and contact information	M.Sc. (Tech.) Ahmed ahmed.ahmed@durham.ac.uk
Public defence date and time	10 November 2023 at 13 o'clock (in Finnish time)
Remote defence	https://aalto.zoom.us/j/66807707699
Place of public defence	Aalto University School of Chemical Engineering, Lecture hall Ke2 (Komppa-Sali), Kemistintie 1, (main door at Biologinkuja) Espoo
Opponent(s)	Professor Tobias Beck, University of Hamburg, Germany
Custos	Professor Mauri A. Kostiainen, Aalto University School of Chemical Engineering
Link to electronic thesis	https://aaltodoc.aalto.fi/handle/123456789/124298
Keywords	protein cages, DNA origami, electrostatic interaction, self-assembly