

Seminar

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Istituto Nazionale della Ricerca Metrologica (INRiM)
Advanced Materials and Life Sciences

Self-assembling materials for nanoscale metrology

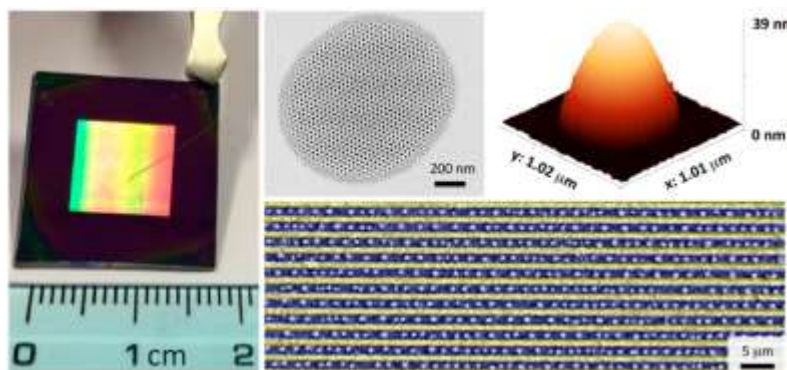
Tuesday, June 9, 2020, h. 17.00

Webex virtual room

<https://unito.webex.com/unito/j.php?MTID=m952cc8ca29a02a10aa93093cb9808841>

The use of self-assembling materials represents a valid solution to overcome the intrinsic limitations of conventional lithographic techniques. For more than one decade, polymeric materials such as block copolymers or colloidal nanospheres attracted considerable attention in many areas of nanosciences, due to their ability to form highly ordered structures with characteristics dimension at nanometric scale. Clear examples are represented by the realization of functional materials for chemical sensing, filtration membranes, microelectronic devices and photonic metamaterials.^{[1]-[2]}

This seminar will highlight the importance of self-assembling materials for the development of novel measurement techniques and advanced materials with direct application to nanoscale metrology.^{[3]-[5]}



1 J. Frascaroli et al. "Resistive Switching in High-Density Nanodevices Fabricated by Block Copolymer Self-Assembly", *ACS Nano*, **2015**, 9, 3, 2518-2529.

2. F. Ferrarese Lupi et al. "Hierarchical Order in Dewetted Block Copolymer Thin Films on Chemically Patterned Surfaces", *ACS Nano*, **2018**, 12, 7, 7076-7085.

3. F. Ferrarese Lupi et al. "Toward Lateral Length Standards at the Nanoscale Based on Diblock Copolymers", *ACS Appl. Mater. Interfaces*, **2017**, 9, 18, 15685-15697.

4 E. Cara et al. "Influence of the long-range ordering of gold-coated Si nanowires on SERS" *Scientific Reports* **2018**, 8, 11305.

5. G. Milano et al. "Memristive Devices for Quantum Metrology", *Advanced Quantum Technologies* **2020**, 3, 5.

ref: Ettore Vittone (ettore.vittone@unito.it)