



## MATERIALS SCIENCE - NANOCHEMISTRY RESEARCH GROUP

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Google Scholar	<a href="https://scholar.google.com/citations?user=YvxfjecAAAAJ&amp;hl=en">https://scholar.google.com/citations?user=YvxfjecAAAAJ&amp;hl=en</a>
Research Gate	<a href="https://www.researchgate.net/profile/Avni_Berisha">https://www.researchgate.net/profile/Avni_Berisha</a>

### Research lines

- Synthesis, characterization and application of 0 D (clusters, nanoparticle, quantum dots) and 2D (graphene oxide, graphene) nanomaterials
- Surface modification of materials (bulk, powdered or nanomaterials – insulator, semi-conductor or conducting ones) by 2D nanometric covalently bonded thin films using the diazonium chemistry
- Theoretical calculations based on quantum and molecular mechanics (both atomistic, molecular and periodic systems) to explore the behavior of nanomaterials (bare and grafted surfaces) and molecules (wavefunction analysis), to evaluate the nature of the grafted molecules, binding strength, solvation properties, diffusion/permeation of gasses and small molecules into materials
- The use of the grafted layers, organic inhibitors, nanomaterials (carbon quantum dots, crystalline nanocellulose and graphene) and expired drugs for corrosion protection of materials (including electrochemical measurements and Molecular Dynamic + Monte Carlo calculations)

