Nanoscale Ething of Biphilic Materials

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Project description:

The world heavily relies on the semi-conductor industry and its cleanroom fabrication of components. The fabrication typically involves UV or e-beam lithography, followed by various metal depositions and etching procedures. The etch methods are essential for reaching the goal, but limitations currently exist for the type of structures which can be fabricated, e.g. it is difficult to fabricate very shallow structures since timing suddenly becomes an issue. We believe that taking advantages of certain properties of biphilic surfaces, we can avoid these typical problems and fabricate nanoscale structures in a much easier way than existing methods.

Content:

Fabrication of biphilic surfaces and etching hereof: Using UV lithography and Molecular Vapor Deposition, the water adhering regions are defined on a water repellent background. Hereafter various types of wet etching of these substrates will be conducted. Cleanroom experience is preferred but not required. **Characterization of etching**: The etched sample will be characterized using Scanning Electron Microscopy, profilometry, and Atomic Force Microscopy.

The successful project will result in a publication