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Abstract for an Invited Paper
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Ordered Pore Arrays in Arrays in Alumina: Fabrication and Application Issues¹

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Ordered two-dimensional arrays of nanopores in alumina have become a popular model system in nanotechnology because of its ease of fabrication and versatility in terms of geometrical parameters and of using it as template for a variety of materials. The presentation will cover the original two-step approach by Masuda published in Science in 1995 for selfordered pore arrays without long range order as well as nanoimprint and interference lithography approaches for long range ordered pore arrays. Guided self-assembly will also be covered. Metal filling of the pores by electrochemical deposition methods for magnetic storage applications and wetting of the pores by polymers which allows the fabrication of complex tube structures will be discussed. A novel method to get segmented nanotubes consisting e.g. of various gold and nickel segments will be described. Finally, the potential of atomic layer deposition in combination with porous alumina will be touched upon.

¹In collaboration with Woo Lee, Kornelius Nielsch, Mato Knez, Ran Ji, Martin Steinhart, Jinsub Choi, and Danilo Zschech, Max Planck Institute of Microstructure Physics.