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| **Abstract:** |  |
| In this paper we introduced anodic aluminum oxide (AAO)—AAO bonding and its applications for fabrication of 3D microstructures. For observing AAO-AAO bonding, aluminum (Al) sheet was anodized from both sides. This anodization was continued until AAO from both sides meet with each other. Here AAO from both sides bonded at their barrier layers which is termed as AAO-AAO bonding. AAO-AAO bonding was utilized for fabrication of nanoporous microchannels. An easy method has been adopted which does not require any lithography or multiple layers deposition techniques. In this method Al sample was punched in a way to give a continuous curved shape from both sides, followed by anodization and etching of Al. The fabricated microchannel thickness was 75 m with 37 m thick membrane walls. Average diameter of nanopores in the walls was 50 nm. This low cost fabrication process is expected to have potentials in sensors, molecular separation and biomedical related applications. | |