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DNA analysis in polymer nanofluidic devices[1] LASSE THAMDRUP, Technical University of Denmark, ANNA KLUKOWSKA, Microresist Technology GmbH, Berlin, Germany, ANDERS KRISTENSEN, Technical University of Denmark, TECHNICAL UNIVERSITY OF DENMARK TEAM, MICRORESIST TECHNOLOGY GMBH, BERLIN, GERMANY TEAM — Inexpensive polymer biochips with nanofluidic channels, for investigating confined DNA, are presented. The biochips are fabricated by thermal imprint in polymethyl methacrylate (PMMA) using a 4 inch diameter two-level hybrid stamp. The fluidic structures were sealed using thermal polymer fusion bonding. The stamp has nanometer- and micrometer-sized protrusions defined in a thermally grown SiO_2 layer and the sol-gel process derived duromeric polymer Ormocomp respectively. A durable chlorosilane based anti-stiction coating was applied by molecular vapour deposition. The polymer biochips were benchmarked against conventional fused silica based devices, by extending T4 GT7 bacteriophage DNA inside the nanochannels. The measured average extension length amounts to 20% of the full contour length with a standard deviation of 4%. These results are in good agreement with results obtained in fused silica devices.

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