Multistep damage evolution process in cubic zirconia irradiated with MeV ions
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A combination of Rutherford backscattering spectrometry and channeling, x-ray diffraction, and transmission electron microscopy experiments was used to study the damage formation in cubic yttria-stabilized zirconia single crystals irradiated with medium-energy (4 MeV) heavy (Au) ions. The damage buildup, which is accounted for in the framework of the multistep damage accumulation model, occurs in three steps.


X-ray ablation of hyaluronan hydrogels: Fabrication of three-dimensional microchannel networks
We present a simple and highly versatile protocol for polymer ablation: hard x-ray irradiation makes it possible to rapidly depolymerize hyaluronan hydrogels and fabricate three-dimensional network of microchannels.


Flexible active-matrix cells with selectively poled bifunctional polymer-ceramic nanocomposite for pressure and temperature sensing skin
Ingrid Graz, Markus Krause, Simona Bauer-Gogonea, Siegfried Bauer, Stephanie P. Lacour, Bernd Ploss, Martin Zirk, Barbara Stadlober, and Sigurd Wagner
Our bifunctional frontplane element is based on a composite foil of piezoelectric ceramic lead titanate nanoparticles embedded in a ferroelectric poly(vinylidene fluoride trifluoroethylene) polymer matrix. Bifunctionality to pressure and temperature changes is achieved by a sequential, area selective two-step poling process, where the polarization directions in the nanoparticles and the ferroelectric polymer are adjusted independently.
