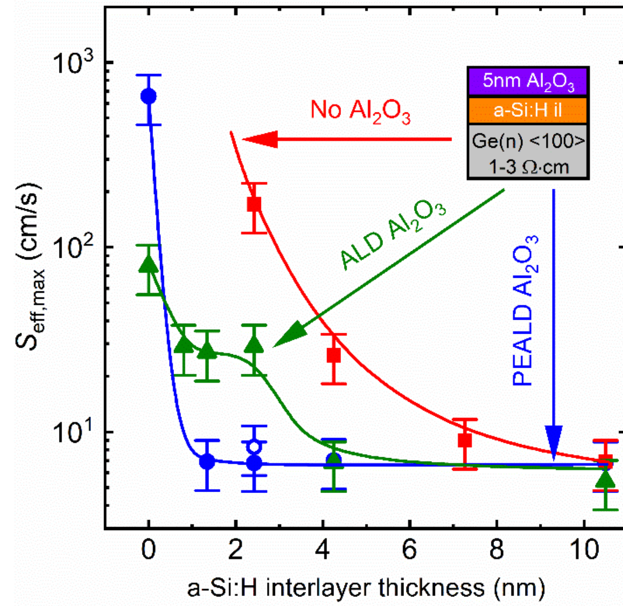

Fig. 1 The maximum effective surface recombination velocity $S_{eff,max}$ measured on Ge as a function of a-Si:H thickness. Data is presented for a-Si:H without additional capping layer (red), with 5 nm Al_2O_3 capping layer by thermal ALD (green), and with 5 nm Al_2O_3 capping layer by plasma-enhanced ALD (blue). The substrate temperature during PECVD a-Si:H and (PE)ALD Al_2O_3 was kept at 200 °C.

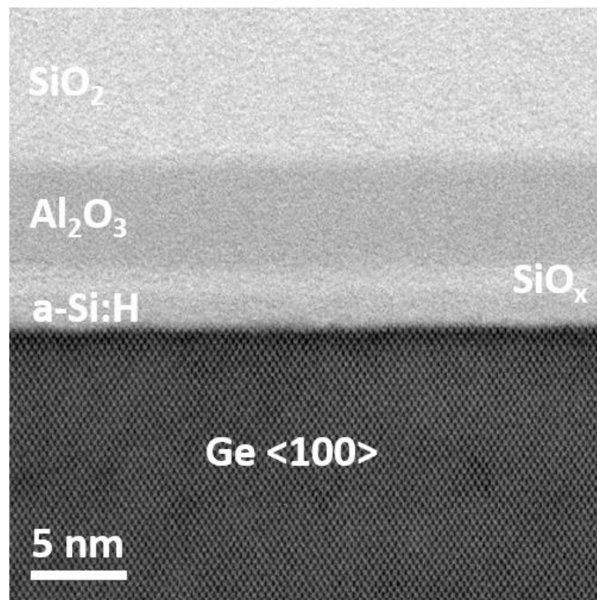

Fig. 2 Cross-sectional bright-field scanning transmission electron microscopy image of a a-Si:H/Al_2O_3 stack on n-type <100> germanium. Similar as the lifetime structures, the a-Si:H was prepared by PECVD and the Al_2O_3 by PEALD, both at a table temperature of 200 °C. The upper layer of SiO_2 has been deposited as protection layer for the FIB procedure. The thicknesses of the layers measure respectively 1.8±0.2nm a-Si:H, 1.4±0.2 nm SiO_x, 6.2±0.2 m PEALD Al_2O_3.