DTU Nanotech
Department of Micro- and Nanotechnology

Precision of Micro Hall Effect Measurements in Scribe Line Test Pads of B-doped SiGe

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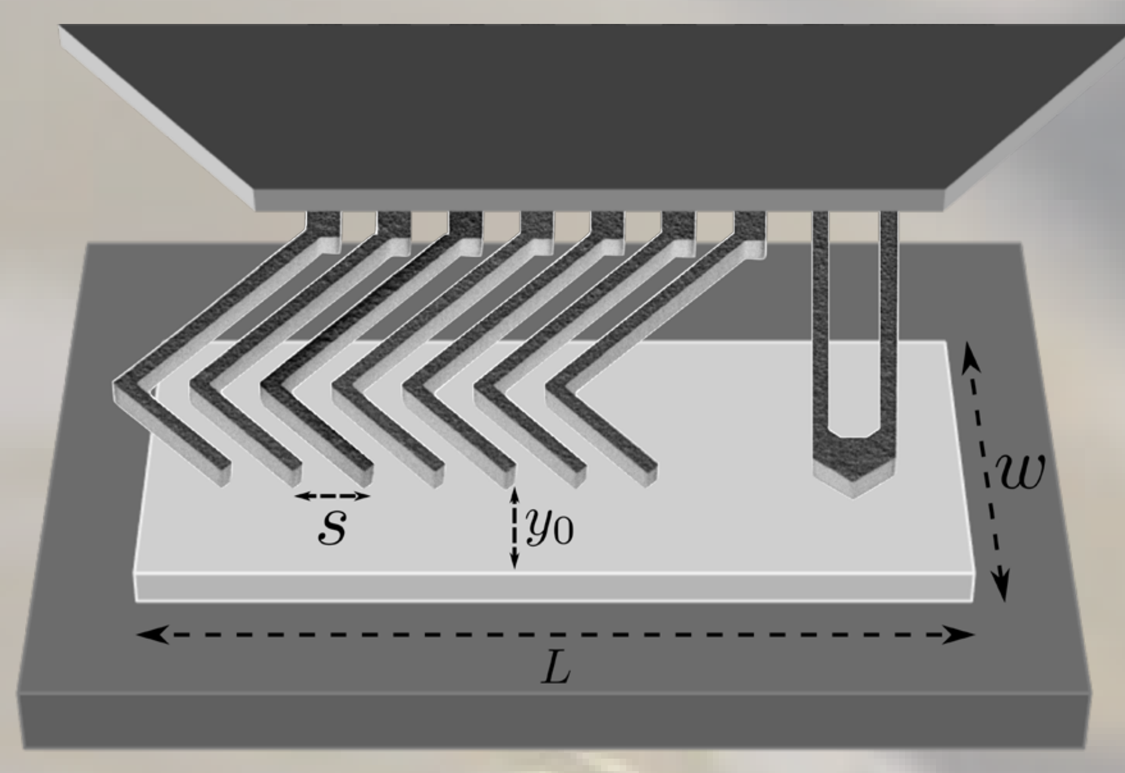
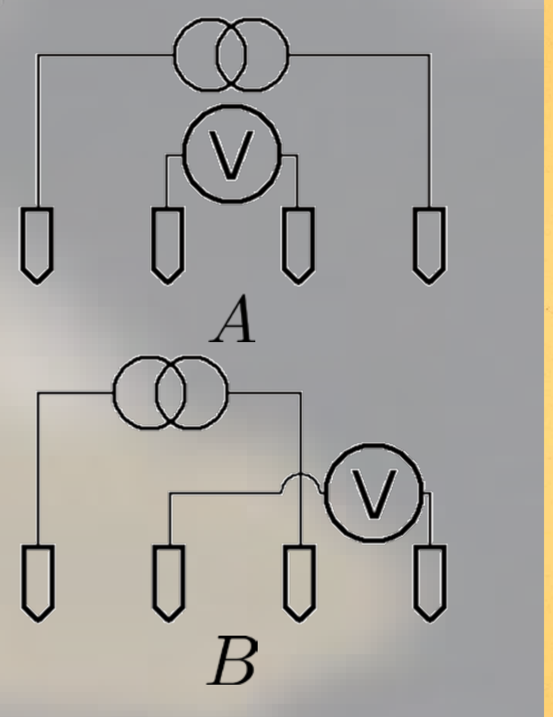
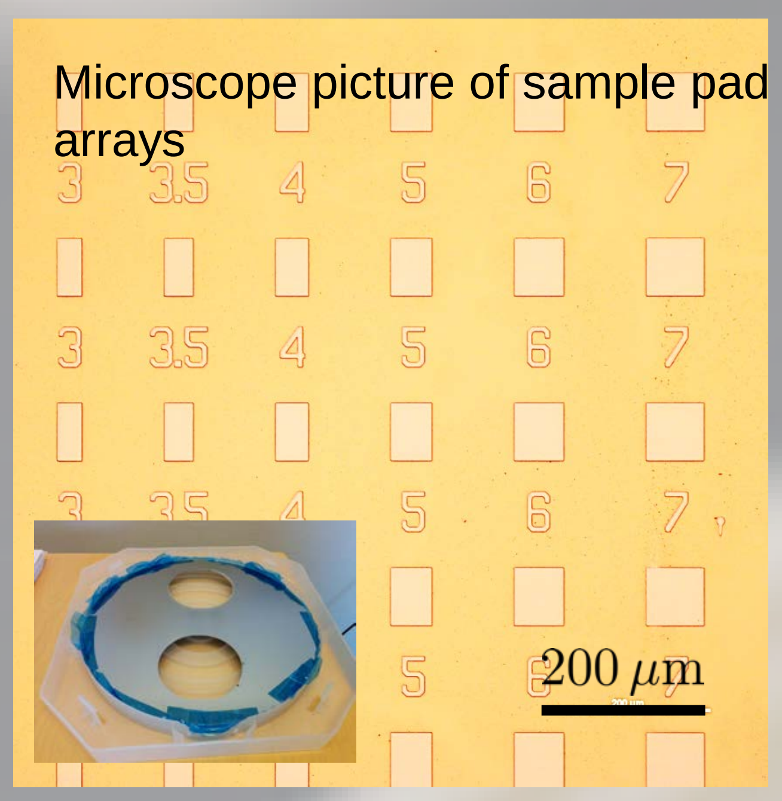
Measurement Technique

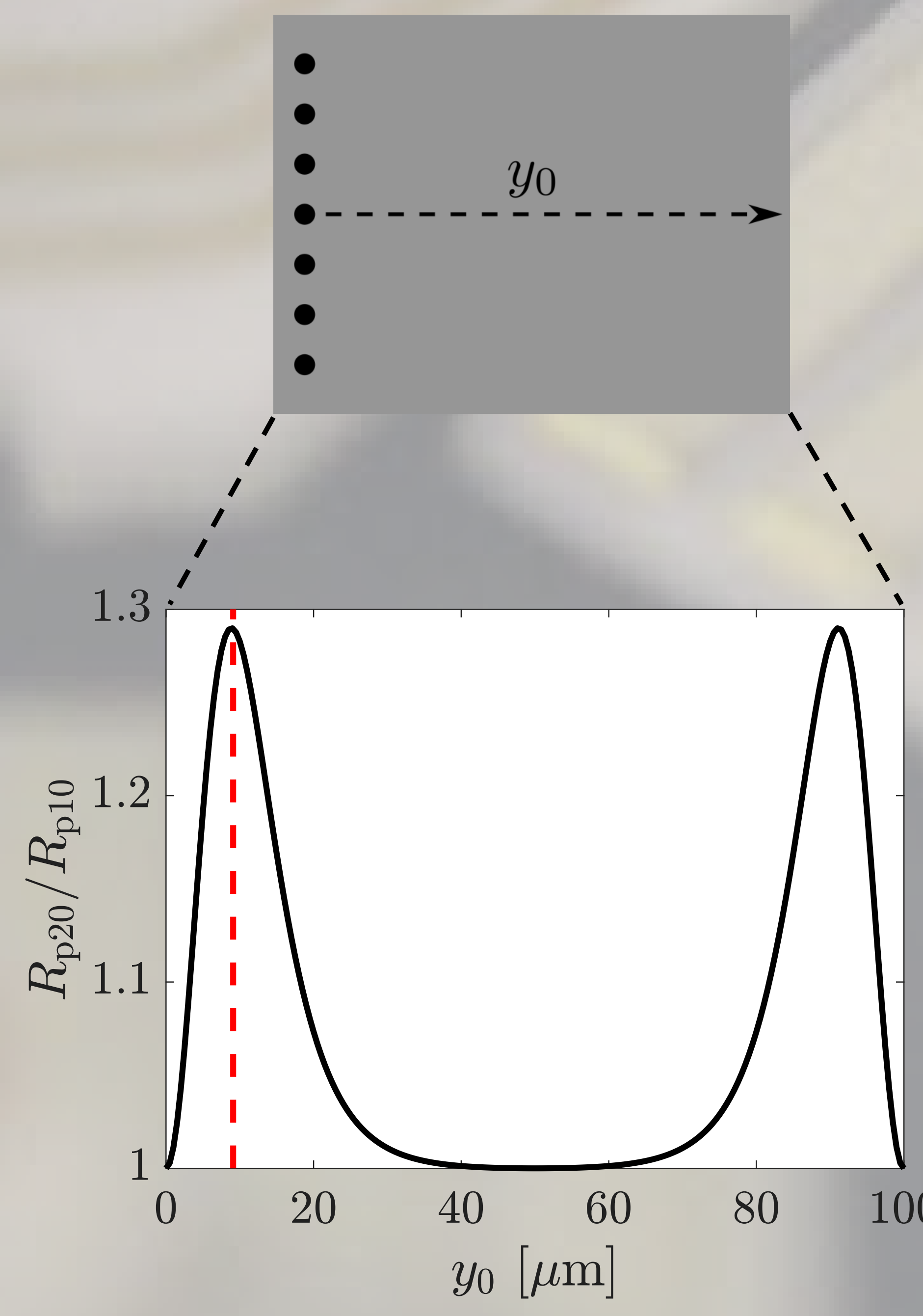




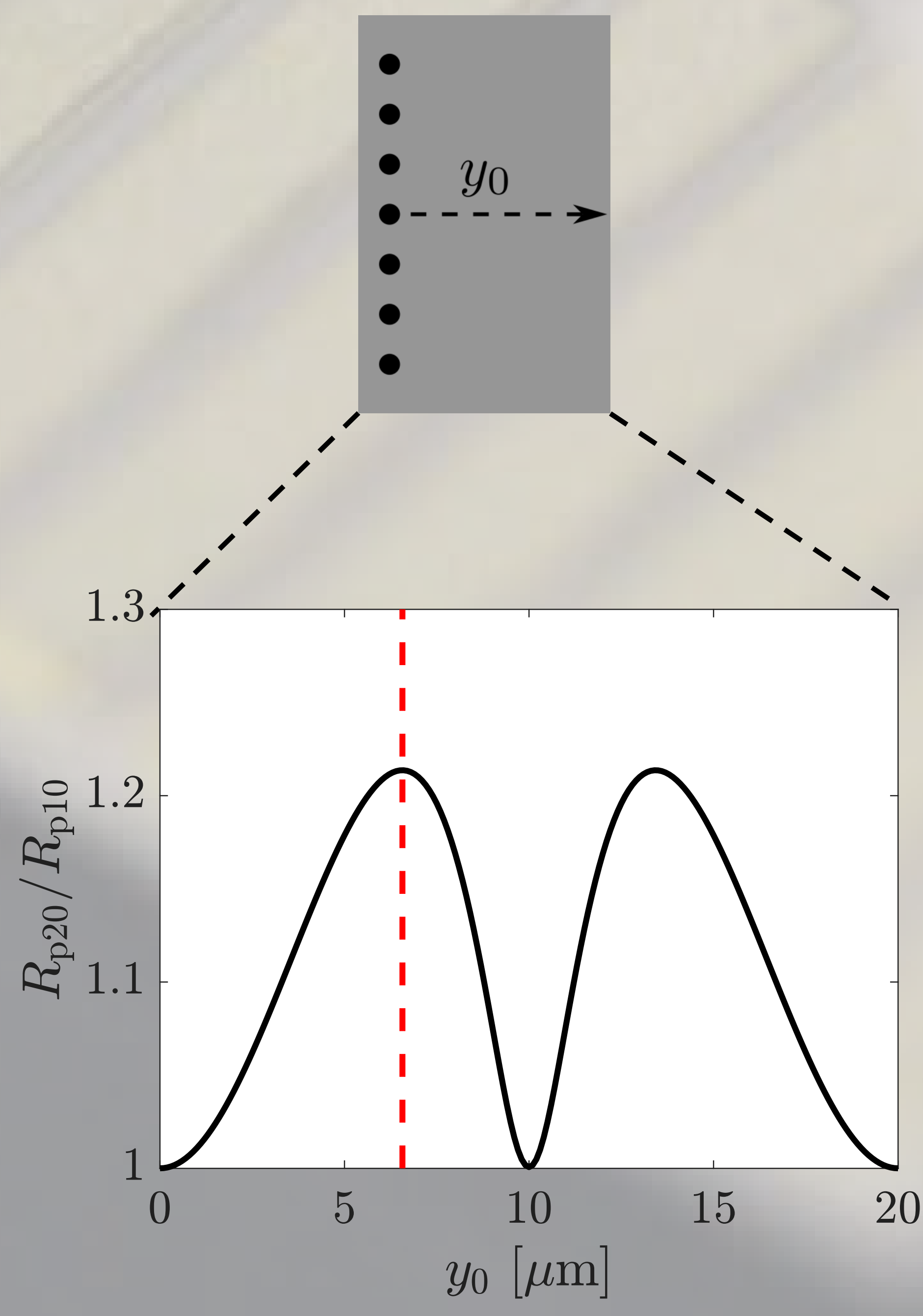

Microscope picture of sample pad arrays

Distance to the Edge

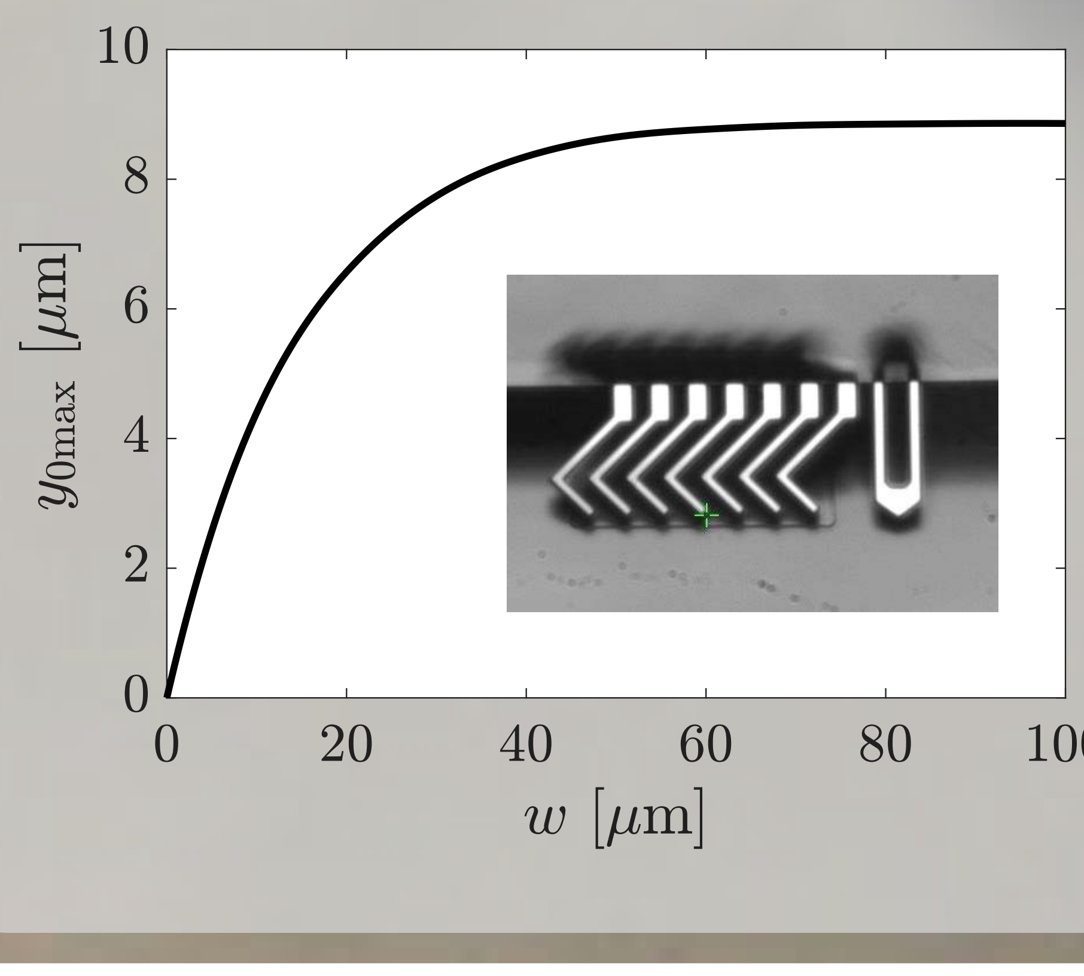
Determining probe distance to the edge, y_0, on a big pad (100 µm)



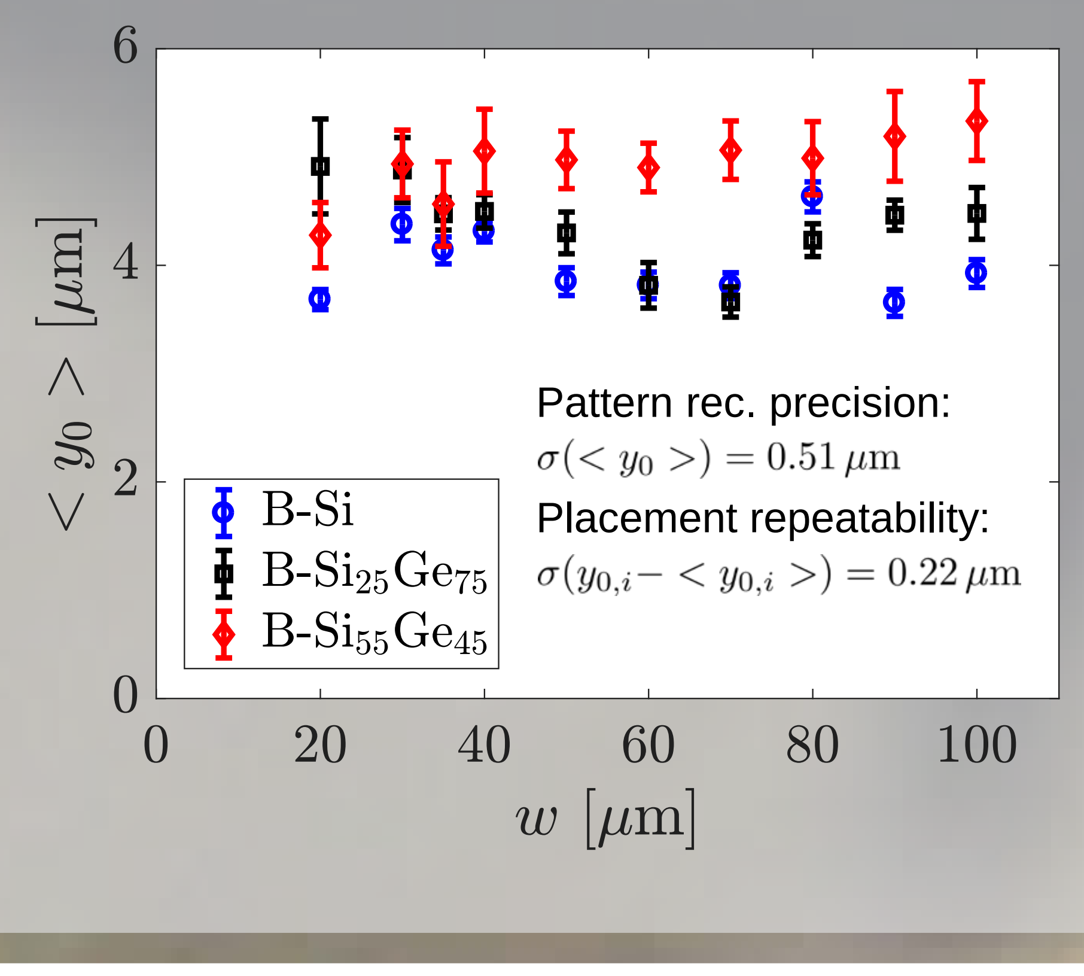
Determining probe distance to the edge, y_0, on a small pad (20 µm)



Maximum probe landing distance from the edge, y_{0max}, vs. pad size, w, to ensure correct y_0 calculation

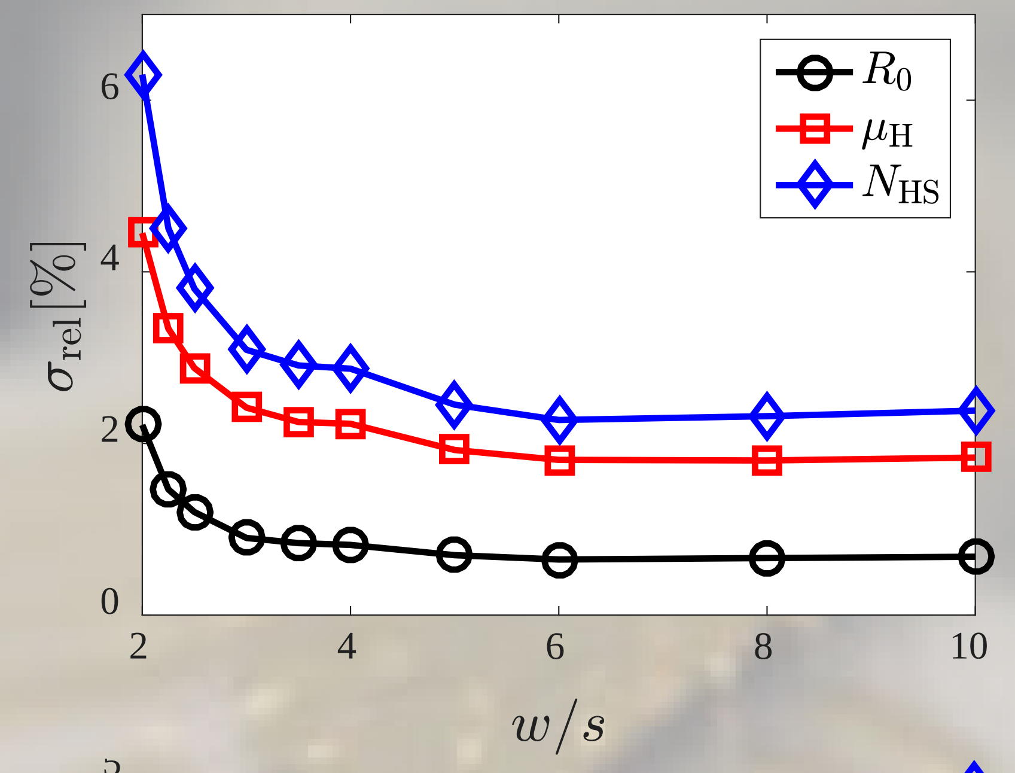


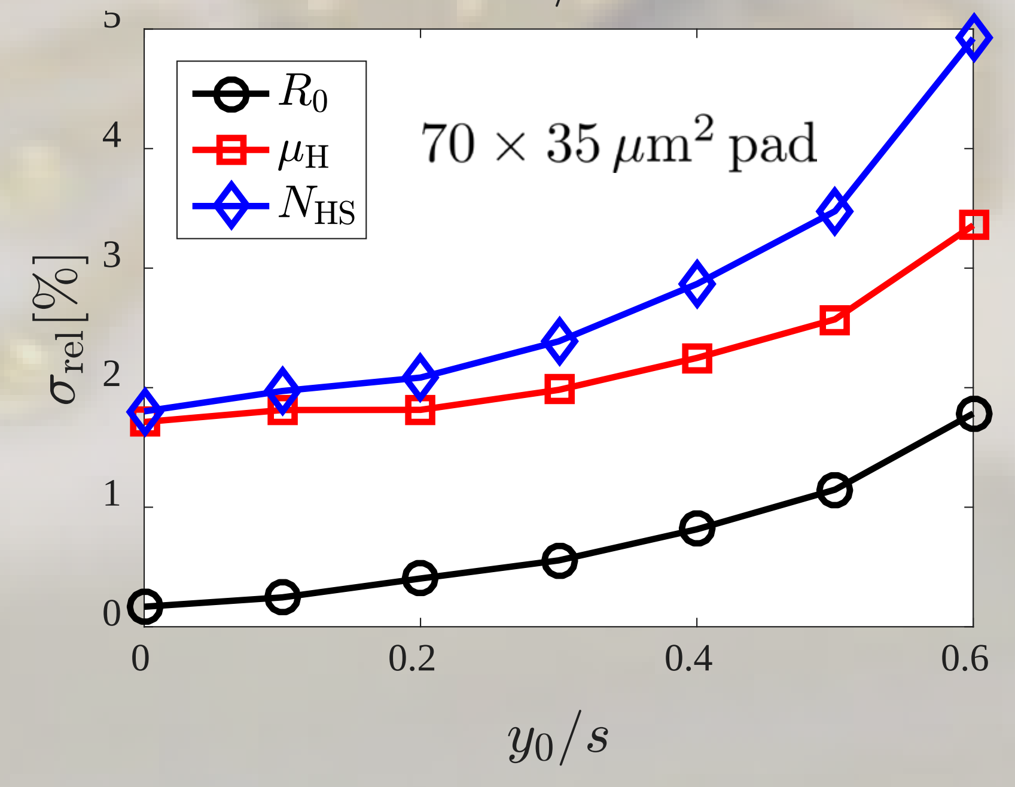
Standard deviation on mean distance to the edge, $\langle y_0 \rangle$, vs. pad size, w, for different samples



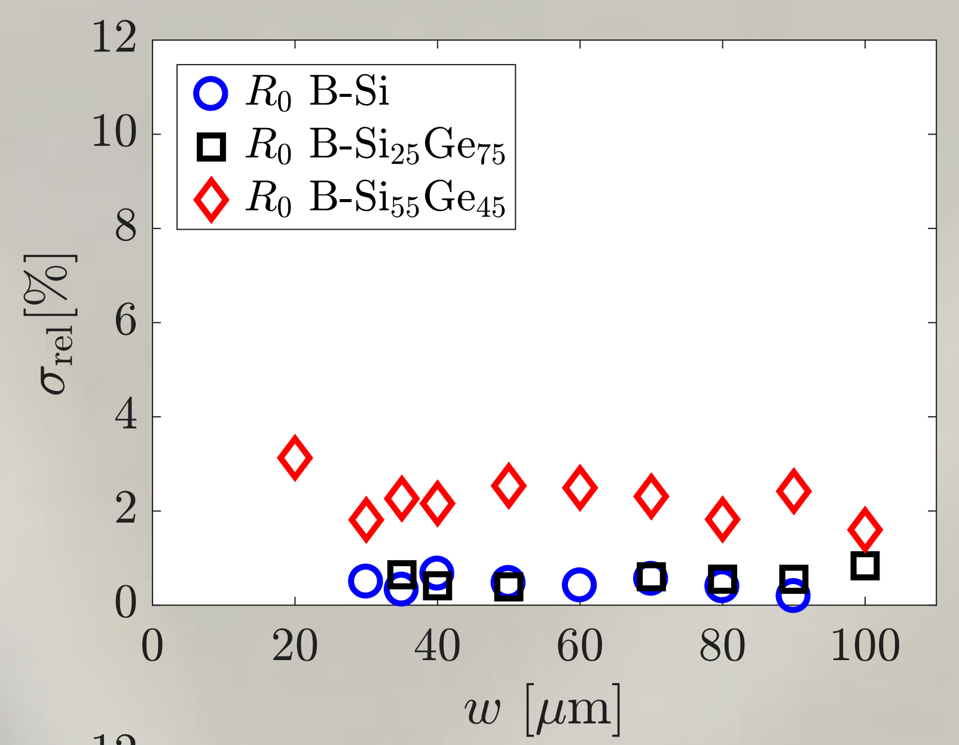
Pattern rec. precision:
$\sigma(\langle y_0 \rangle) = 0.51\,\mu m$
Placement repeatability:
$\sigma(y_{0,i} - \langle y_{0,i} \rangle) = 0.22\,\mu m$

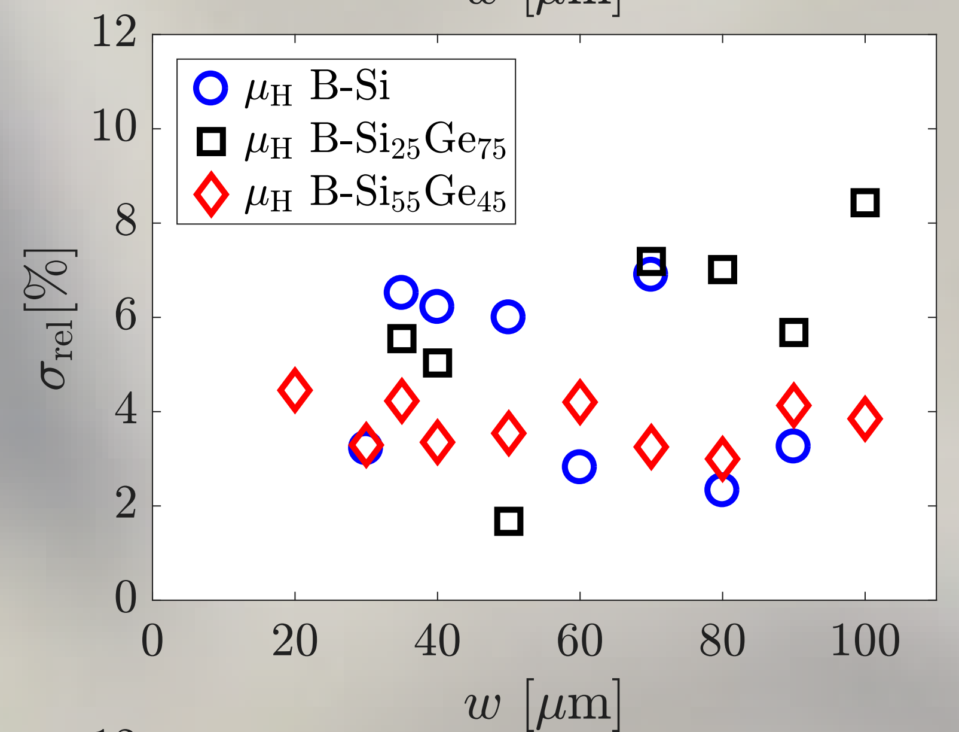
Monte Carlo Simulation of Measurement Errors

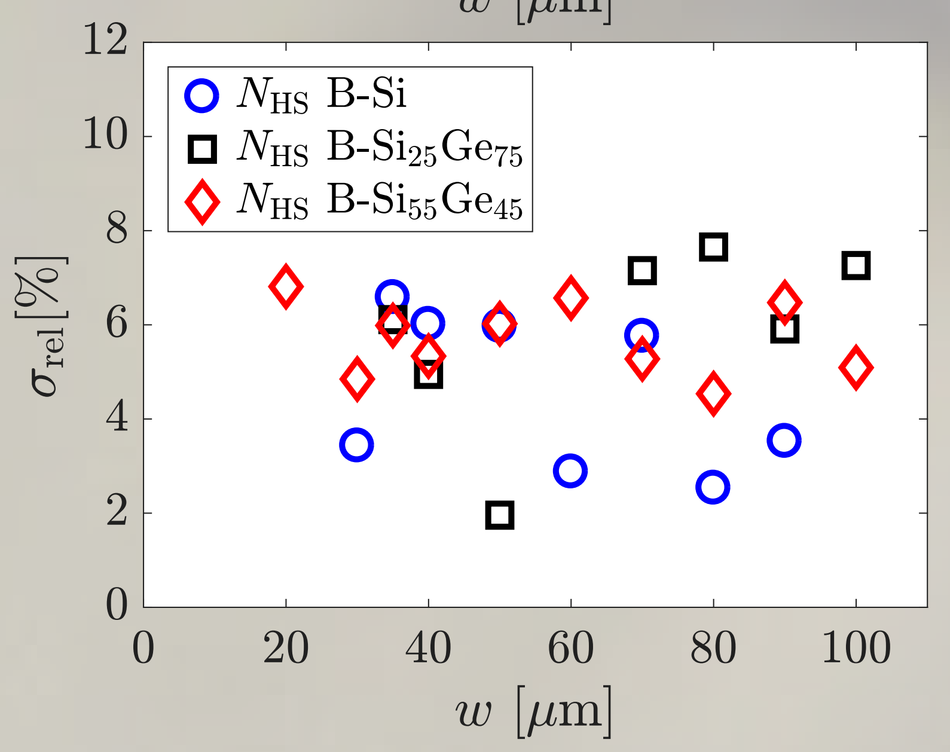




Experimental Measurement Errors on B-doped SiGe Pads







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