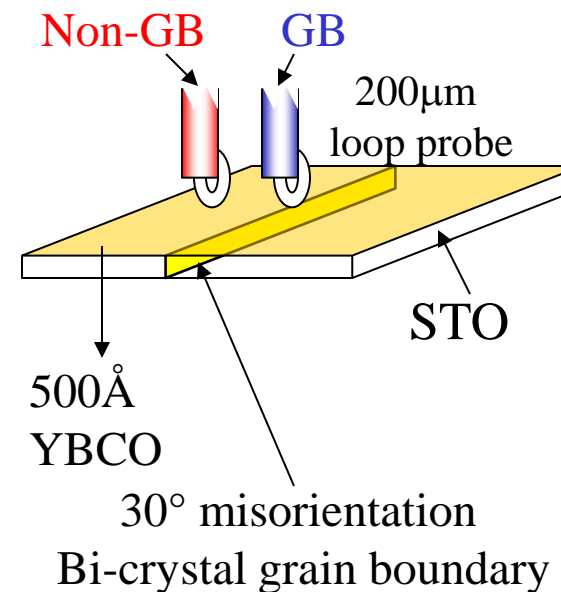
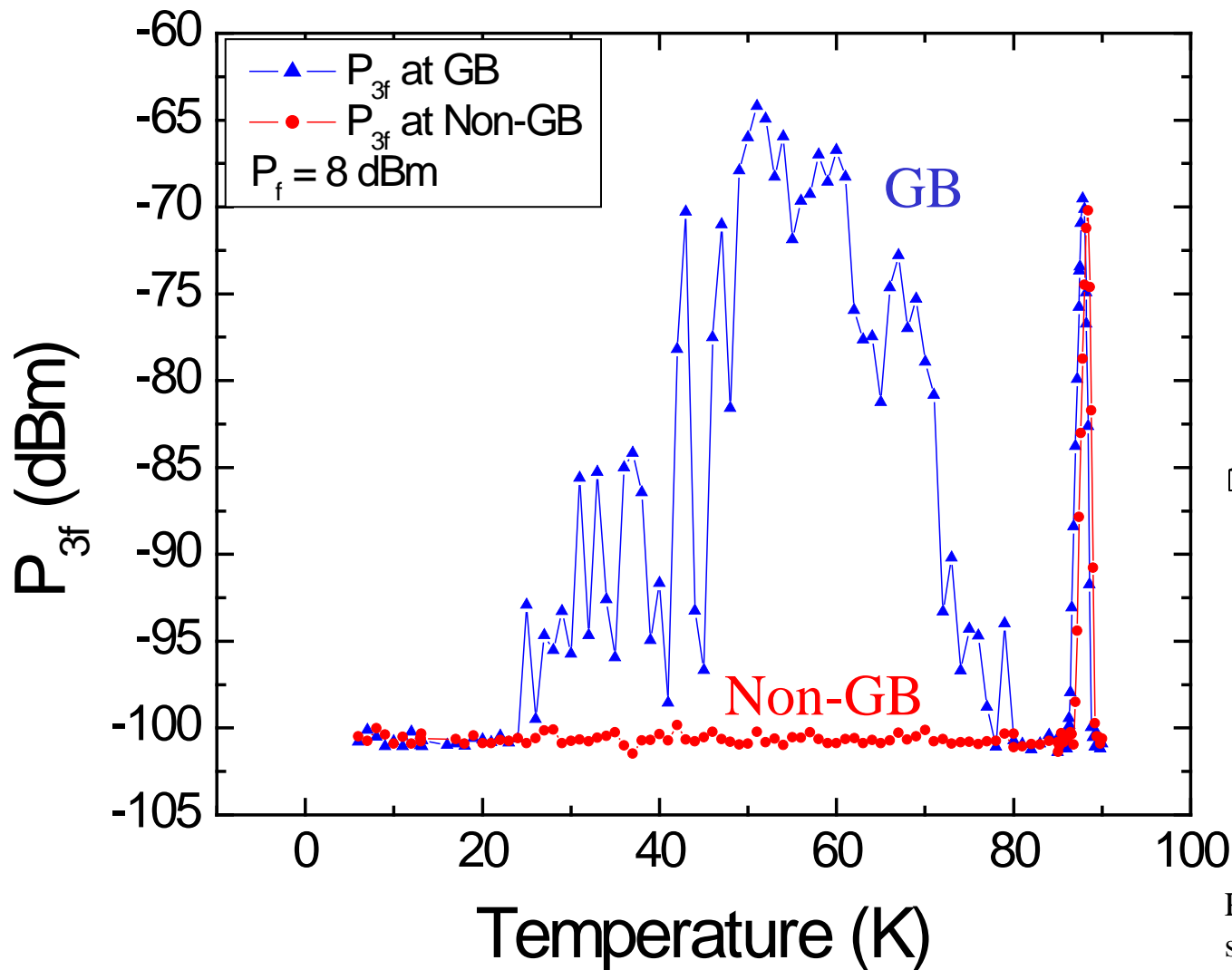


Comparison of Temperature-dependent P_{3f} at GB/Non-GB on a 30° Bi-crystal YBCO thin film



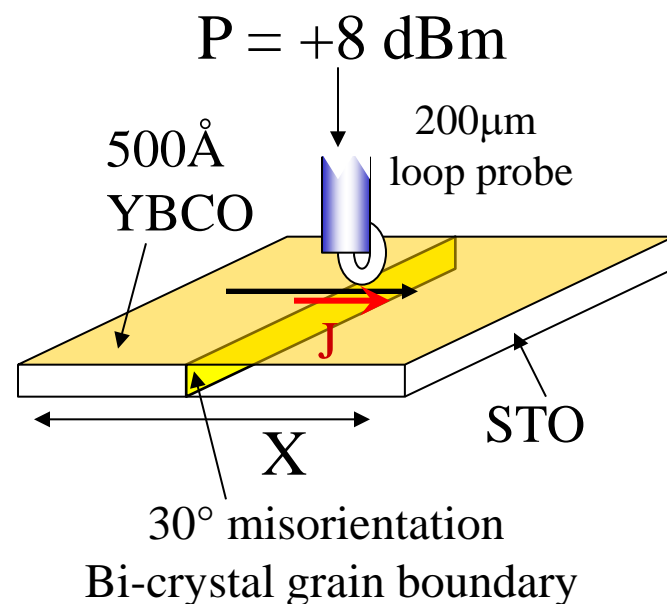
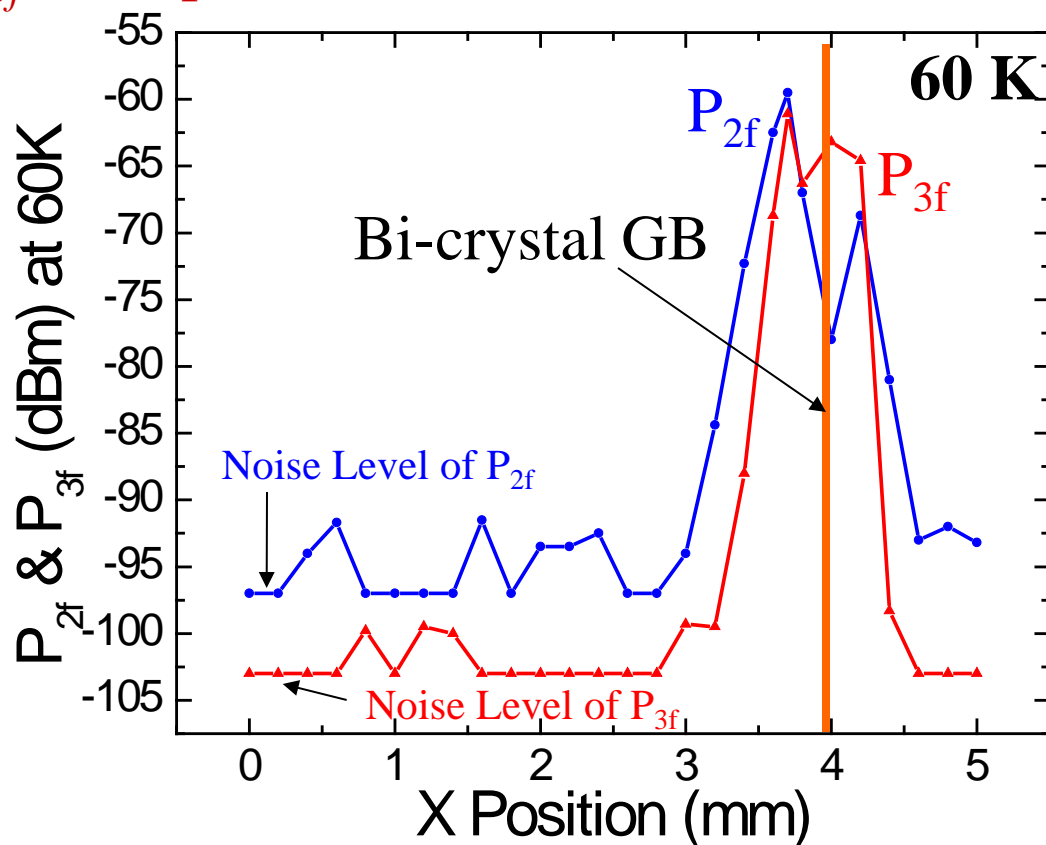
Pure AC-biased JJ produces a rich spectrum of odd harmonics

Validation of this Technique

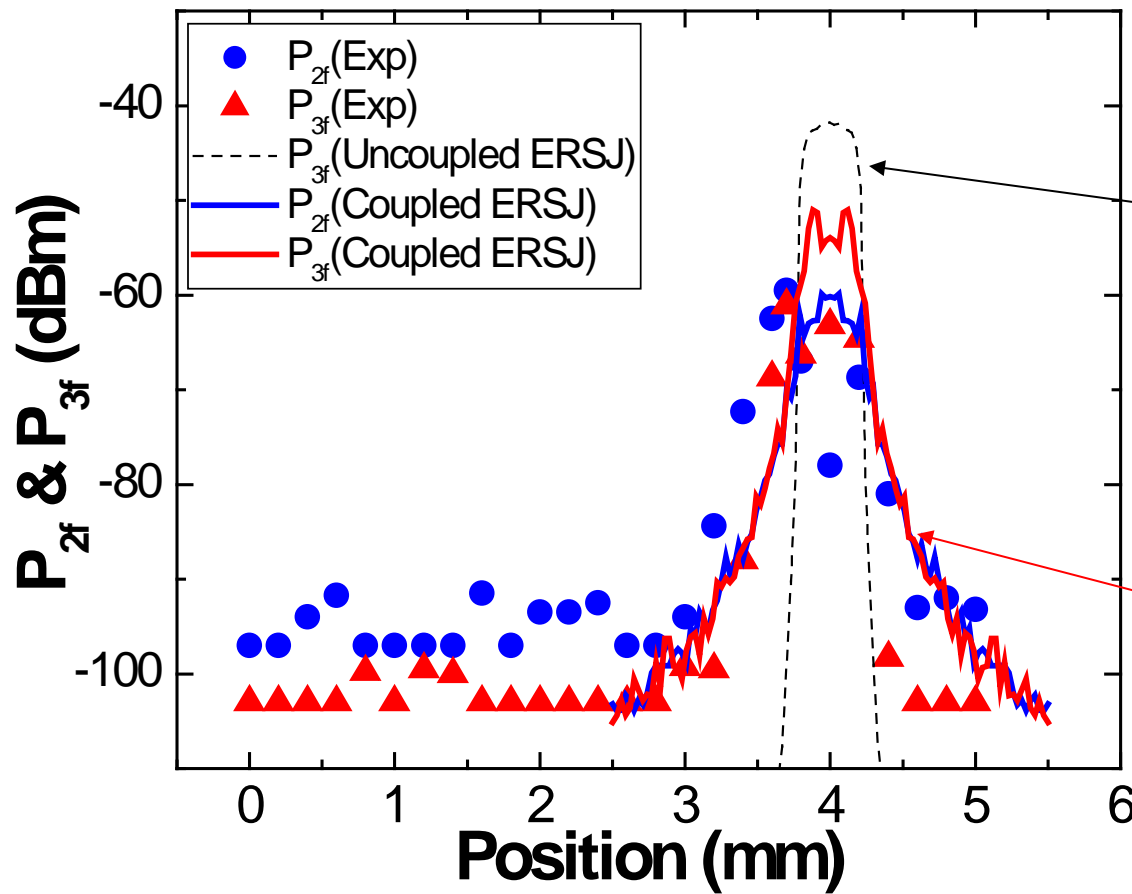
Line-Scan of 2nd and 3rd order nonlinearities across
Bi-crystal YBCO Grain boundary

P_{2f} : Josephson vortices break Time-Reversal Symmetry

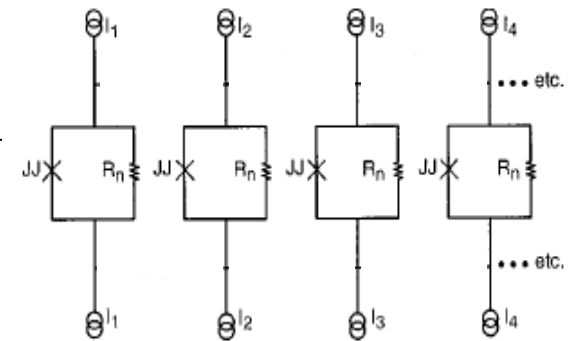
P_{3f} : Josephson Junction is a known source of 3rd order nonlinearity



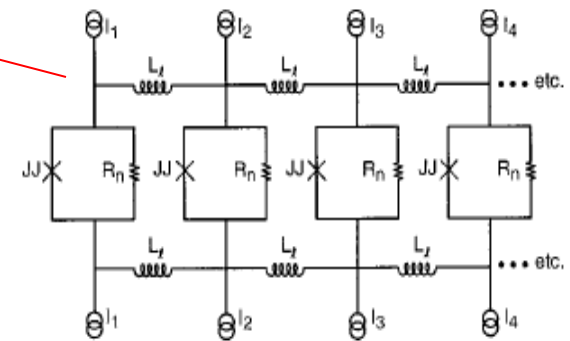
Extended Resistively Shunted Junction (ERSJ) Model of Bi-Crystal GB



Uncoupled ERSJ



Coupled ERSJ



D. Oates, *et al.*

Coupled ERSJ quantitatively/spatially reproduces experimental data