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Energy Distribution of SiO2/Si Interface Traps: Experiments and Theory[1] CHIH-TANG SAH, University of Florida, BIN B. JIE, IME, Peking University, ZUHUI CHEN, Sah Pen-Tung Center, Xiamen University — Experiments over the history suggested U-shaped density of state of electronic states localized at the surface and interfaces of crystalline silicon. Experimental results are reviewed. Slater's 3-dimensional localized perturbation theory for bound electronic states at bulk donor and acceptor impurity ions in solids, extended by Sah, anticipates U-shaped energy distribution of bound electronic states from neutral electron and hole interface traps due to random variations of the Si:Si and Si:O bond angle and length. Theory and experiments are described.

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