

## 1996 ASC Abstract

### High-T<sub>c</sub> SNS Josephson Junctions: Moving Beyond Adolescence\*

A.W. KLEINSASSER AND K.A. DELIN, Center for Space Microelectronics Technology, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA 91109, USA - Much of the worldwide effort to develop high-I<sub>c</sub> Josephson junctions for microelectronic applications is based on superconductor-normal-superconductor (SNS) junctions. Initially, the behavior of nominally-SNS devices reported by numerous groups was loosely interpreted within conventional proximity effect theory. It is now clear that these claims, while often vigorous, were unsupported and that nearly all high-I<sub>c</sub> SNS junctions are much better understood by recognizing that transport occurs via unintended electrical paths through the normal interlayers. Only within the past two years have SNS junctions been fabricated which are demonstrably described by conventional proximity effect theory. We will review present research and development on high-I<sub>c</sub> SNS devices, a field which now shows definite signs of maturing. The status of recent experimental results and their theoretical interpretation will be discussed, emphasizing how theory can help direct the development of practical circuit technology.

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*ITS Junctions, HTS Junctions, Three Terminal Devices, Flux Flow/Long Junctions*