Noise supplement JSIM Preliminary Version User's Guide

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1. Introduction

JSIM (Josephson SIMulator) is a circuit simulation program for Josephson circuits. The noise extension adds two new device types, and is intended to be a strict superset of standard JSIM, documented in the file manual.ms.

Modifications, makefile, awk script, this document and the contents of the test directory are

2. Circuit Description

2.1. Independent Voltage Sources

2.1.1. Noise Sources

General form : VXXXX N1 N2 NOISE(VO VA TSTEP TD)

Example : V1 1 0 NOISE(0 1P 1PS 0PS)

Note VO must be zero. VA is the spectral amplitude density of the noise source in Volts/root(Hz). TSTEP is a the maximum time step that will be used, this provides an opportunity to limit therrors in the stochastic algorithm. 1pS seems to be reasonable for HTS junction parameters. TD is a time delay before noise starts.

2.2. Independent Current Sources

2.2.1. Noise Sources

General form : IXXXX N1 N2 SIN(IO IA TSTEP TD)

Example : I1 1 0 NOISE(0 1P 1PS 0PS)

Note IO must be zero. IA is the spectral amplitude density of the noise source in Amps/root(Hz). TSTEP is a the maximum time step that will be used, this provides an opportunity to limit therrors in the stochastic algorithm. 1pS seems to be reasonable for HTS junction parameters. TD is a time delay before noise starts.

BUGS

If you find any problems with the stochastic extension, please send e-mail to satchell@dra.hmg.gb, include the input deck that causes the problem and a description of the problem. Warning: I may ignore you, be too busy or be unable to help.