

SEMINAIRE du Service d'Astrophysique



PERFORMANCE OF THE BAND 3 (84-116 GHz) RECEIVER FOR ALMA

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ATTENTION JOUR INHABITUEL

Lundi 15 mai 2006

11h00

- 1) Introduction à la détection hétérodyne, par Stephane Claude
- 2) Performance of the Band 3 (84-116 GHz) receiver for ALMA Presented by Stéphane Claude
Band 3 covering 84 to 116 GHz is one of the ten bands that will form the Atacama Large Millimetre Array Front End Receiver. A Band 3 receiver prototype and one unit have been assembled and tested so far at the Herzberg Institute of Astrophysics, Canada. This talk will give an overview of the Band 3 design and also present the performance of the first deliverable unit. The single sideband (SSB) system noise exceeds the specifications ($TSSB < 37K$) across the full RF band with a minimum TSSB of 26 K and a maximum of 34 K. In addition to details of the system noise performance other characteristics such as image rejection, cross polarization and amplitude stability will also be presented.
- 3) Low Noise Cryogenic Amplifier for Band 3 Presented by Frank Jiang The design of 4-8 GHz amplifiers will be given as well as performances.
The amplifier design is using a hybrid circuit in order to provide maximum flexibility for optimizing the active and passive components.
Low noise (less than 4 K when cooled at 12 K), low power consumption (less than 9 mW) and flat gain (+/-1 dB) and bandwidth (4-8 GHz minimum) are the major drivers for the design of this 3 stage InP HEMT transistors.

Ce séminaire aura lieu au CEA Saclay - Orme des Merisiers - bâtiment 709, Salle 220.