מכון ויצמן למדע

THE WEIZMANN INSTITUTE OF SCIENCE

FACULTY OF MATHEMATICS AND COMPUTER SCIENCE

Algebraic Geometry and Representation Theory Seminar

Room 261 ,Ziskind Building
on Wednesday, May 13, 2015
at 11:00

Luc Illusie
University of Paris-Sud

Around the Thom-Sebastiani theorem

Abstract:

For germs of holomorphic functions $f : \mathbf{C}^{m+1} \to \mathbf{C}$, $g : \mathbf{C}^{n+1} \to \mathbf{C}$ having an isolated critical point at 0 with value 0, the classical Thom-Sebastiani theorem describes the vanishing cycles group $\Phi^{m+n+1}(f \oplus g)$ (and its monodromy) as a tensor product $\Phi^m(f) \otimes \Phi^n(g)$, where $(f \oplus g)(x,y) = f(x) + g(y), x = (x_0,...,x_m), y = (y_0,...,y_n)$. I will discuss algebraic variants and generalizations of this result over fields of any characteristic, where the tensor product is replaced by a certain local convolution product, as suggested by Deligne. The main theorem is a Künneth formula for $R\Psi$ in the framework of Deligne's theory of nearby cycles over general bases.

Email: hanni.naor@weizmann.ac.il * Phone: (08)9343349 * Fax: (08)9344308