



Du
30
MARS.
2019

14h30

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15h30

SÉMINAIRE BOURBAKI

**Luca MIGLIORINI — HOMFLY polynomials from the Hilbert schemes of a planar curve ,
after D. Maulik, A. Oblomkov, V. Shende...**

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INSCRIPTION

Among the most interesting invariants one can associate with a link $L \subset S^3$ is its HOMFLY polynomial $P(L, v, s) \in \mathbb{Z}[v^{\pm 1}, (s-s^{-1})^{\pm 1}]$. A. Oblomkov and V. Shende conjectured that this polynomial can be expressed in algebraic geometric terms when L is obtained as the intersection of a plane curve singularity $(C, p) \subset \mathbb{C}^2$ with a small sphere centered at p : if $f=0$ is the local equation of C , its Hilbert scheme $C[n]_p$ is the algebraic variety whose points are the length n subschemes of C supported at p , or, equivalently, the ideals $I \subset \mathbb{C}[[x, y]]$ containing f and such that $\dim \mathbb{C}[[x, y]]/I = n$. If $m: C[n]_p \rightarrow \mathbb{Z}$ is the function associating with the ideal I the minimal number $m(I)$ of its generators, they conjecture that the generating function $Z(C, v, s) = \sum_n s^{2n} \int_{C[n]_p} (1-v^2)^{m(I)} d\chi(I)$ coincides, up to a renormalization, with $P(L, v, s)$. In the formula the integral is done with respect to the Euler characteristic measure $d\chi$. A more refined version of this surprising identity, involving a colored" variant of $P(L, v, s)$, was conjectured to hold by E. Diaconescu, Z. Hua and Y. Soibelman. The seminar will illustrate the techniques used by D. Maulik to prove this conjecture.

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HORAIRES

L'institut :

- lundi au vendredi de 8h30 à 18h,
- fermé les jours fériés.

Le musée - Maison Poincaré :

- lundi, mardi, jeudi et vendredi de 9h30 à 17h30,
- samedi de 10h à 18h,
- fermé le mercredi et le dimanche.