1160-13-183 **Alessandra Costantini*** (alessanc@ucr.edu). *Residual intersections and modules with Cohen-Macaulay Rees algebra.* Preliminary report.

Let R be a Noetherian ring, and E a finitely generated R-module with a rank. The Rees algebra $\mathcal{R}(E)$ of E is defined as the symmetric algebra $\mathcal{S}(E)$ modulo its R-torsion submodule. In 2003, Simis, Ulrich and Vasconcelos proved that the study of the Cohen-Macaulay property of Rees algebras of modules can be reduced to the case of Rees algebras of ideals: the Rees algebra $\mathcal{R}(E)$ of a module E is Cohen-Macaulay if and only if the Rees algebra $\mathcal{R}(I)$ of a *generic Bourbaki ideal* I of E is Cohen-Macaulay. However, the problem of determining under what conditions the Rees algebra of a module is Cohen-Macaulay is still object of current research.

In this talk, we will provide sufficient conditions for a module E to have Cohen-Macaulay Rees algebra. Our results are obtained by exploiting nice properties of the residual intersections of a generic Bourbaki ideal I of E. We recover a well-known results of Johnson and Ulrich and of Goto, Nakamura and Nishida for Rees algebras of ideals, as well as previous work of Lin on a more restrictive class of modules. The talk is based on a preprint available on the arXiv (arXiv:1811.08402v1). (Received August 10, 2020)