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**Alexander Suciu** and **He Wang\*** ([wang.he1@husky.neu.edu](mailto:wang.he1@husky.neu.edu)), Department of Mathematics,  
Northeastern University, Boston, MA 02115. *Cohomology jump loci of configuration spaces.*

In his thesis, K.T. Chen studied the lower central series quotients of the maximal metabelian quotient  $G/G''$  of a finitely generated group  $G$ . Later on, K. Murasugi used these groups, which he called the Chen groups, to study Milnor's invariant of links, while W.S. Massey and L. Traldi investigated the relationship between the Chen groups and the Alexander module of a link group. D. Cohen and A. Suciu extended Massey's method, and used it to compute the Chen groups of the pure braid groups. In this talk, I will present several results relating the resonance varieties and the ranks of the Chen groups of the welded braid groups, the virtual braid groups and the pure braid groups on Riemann surfaces. Motivated by these examples, we investigate possible generalizations of the Chen ranks conjecture, which relates the Chen ranks of a finitely generated group to the geometry of its first resonance variety. (Received December 15, 2014)