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Alexander I. Suci* (a.suciu@neu.edu), Department of Mathematics, Northeastern University, Boston, MA 02115. *Representation varieties and polyhedral products.*

Given a finitely generated group π and a complex, linear algebraic group G , the representation variety $\text{Hom}(\pi, G)$ has a natural filtration by the cohomology jump loci associated to a rational representation $G \rightarrow \text{GL}(V)$. The infinitesimal counterpart of the representation variety around the trivial representation is the space of \mathfrak{g} -valued flat connections on an appropriate commutative, differential graded algebra (A, d) . This space admits a corresponding filtration by the resonance varieties associated to the tangential representation $\mathfrak{g} \rightarrow \mathfrak{gl}(V)$ of the Lie algebra of G . In this talk, I will explain how one can understand the local behavior of all these varieties, at least in some favorable situations of geometric interest. This approach works very well in the case when $G = \text{SL}(2, \mathbb{C})$ or one of its standard subgroups, and π is a right-angled Artin group, that is, the fundamental group of a polyhedral product of the form $\mathcal{Z}_K(S^1, *)$, for some finite simplicial graph K . (Received January 27, 2017)