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Christopher R. Cornwell* (cornwell@cirget.ca), 1225 Rue du Sussex, Montreal, Quebec H3H 2A2, Canada. *Understanding character varieties via contact homology.*

I will discuss a relationship between a version of knot contact homology and the $SL_2\mathbb{C}$ character variety of the two-fold branched cover over a knot. Trace-free $SL_2\mathbb{C}$ characters for a knot complement, and whether or not they correspond to a metabelian representation, play an important role. The relationship produces an effective tool for understanding $SU(2)$ representations of relevance to Kronheimer and Mrowka's singular instanton knot homology. In addition, it provides a method to find double branched covers with left-orderable fundamental group, which is of interest to a conjecture of Boyer, Rolfsen, and Wiest. (Received September 19, 2015)