1108-57-236 **Matthew Hedden**, **Christopher M. Herald*** (`herald@unr.edu`) and **Paul Kirk**. *Traceless representations, tangles and a Lagrangian-Floer theory in the pillowcase.* Preliminary report.

We discuss a relatively Z/4 graded Lagrangian-Floer chain complex for a particular class of 1-manifolds in the pillowcase, that is, the traceless character variety of the four-punctured 2-sphere. Given an appropriate 2-tangle decomposition of a knot, the traceless SU(2) character varieties of the tangles give rise to Lagrangian submanifolds in the pillowcase. A Lagrangian-Floer chain complex is then generated by intersections, which correspond to the generators of Kronheimer-Mrowka singular instanton chain complex for the knot. We discuss the Atiyah-Floer conjecture relating these two Floer homology theories, and the prospects for showing the Lagrangian-Floer complex is a knot invariant. (Received January 14, 2015)