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The effect of non-magnetic impurities on the motion of a hole in a 2D Ising antiferromagnet[1] HADI EBRAHIMNEJAD, MONA BERCIU, University of British Columbia, MONA BERCIU'S TEAM — A hole in a 2D Ising antiferromagnet was initially believed to be infinitely heavy due to the string of wrongly-oriented spins it creates as it propagates, which trap it near its original location. Trugman showed that, in fact, the hole acquires a finite effective mass due to contributions from so-called *Trugman loops* processes, where the hole goes one and a half times around a closed loop and removes the defects it created during the first round, but ends up at a different site. This results in an effective next-nearest-neighbour hoping of the hole which keeps it on the sublattice it was created on. Here we investigate the trapping of such a hole near a single non-magnetic impurity, using a variational calculation of the hole's real-space Green's function. We consider the two cases with the hole and impurity being on the same versus on different sublattices, and contrast the differences between them.

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