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Fine strand-like structure in the corona from MHD transverse oscillations

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High resolution observations in coronal lines with Hi-C, or in chromospheric lines from coronal rain events, indicate that the magnetic field may tends to organize itself in the corona in fine strand-like structures of a few hundred kilometers. Numerical models, however, have so far failed to explain such organization. In this work we present through 3D MHD simulations, a model that easily leads to the generation of strand-like structure in loops. This model is based on the observational finding that the corona is permeated with small-scale transverse MHD waves. Here we show that even very small amplitudes of these waves very easily lead to Kelvin-Helmholtz instabilities, producing fine scale structure in loops. Through forward modelling we show that the roll-ups (eddies) generated from the instability are locally enhanced density regions leading to current sheets, which appear as strand-like structure from the line-of-sight effects.