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Rotons and their damping in elongated dipolar Bose-Einstein condensates

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Finite temperature damping of rotons in elongated Bose-condensed dipolar gases which are in the Thomas-Fermi regime in the tightly confined directions, is discussed. The presence of many branches of excitations which can participate in the damping process is shown to result in significant increase of the damping rate. It is found, however, that even rotons with energies close to the roton gap may remain fairly stable in systems with the roton gap as small as 1 nK.

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