# 2-dimensional non-LTE Radiative Transfer in Cartesian, cylindrical and spherical coordinates

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A new Radiative Transfer code that can calculate the non-LTE line transfer problem in a two-level atom formulation in Cartesian, cylindrical and spherical coordinate systems is presented. The transfer equation is solved using the ALI and the short characteristics methods, while allowing for an arbitrary 3-dimensional velocity field.

The code is modularised so that changing geometry can be accomplished by simply setting a switch, and parallelised for use on a networked PC cluster to increase computational speed. The spatial parallelization method is employed. It is found to be robust and efficient, while not relying heavily on fast communication.

The internal accuracy of the code is tested extensively in all three geometries and is shown to be in good agreement with appropriate 1-D solutions.