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RNA folding inside a virus capsid and dimensional reduction.

ROUZBEH GHAFOURI, Department of Physics, UCLA, ROBIJN BRUINSMA, Department of Physics, UCLA, JOSEPH RUDNICK, Department of Physics, UCLA — As RNA folds on itself, in certain conditions, it takes the form of a branched polymer. So the problem of RNA folding in a virus capsid is essentially the problem of a branched polymer in a confined environment. In this paper we attack the problem using the technique of dimensional reduction which relates a branched polymer with self interaction in D dimension to a hardcore classical gas in $(D-2)$ dimension. We look for phase transitions and interesting physical quantities such as pressure.

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