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Heavy Quarks and Quarkonia in Thermal $aAdS_5$[1]

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I review how heavy quarks loose energy in AdS/CFT. I further show how the quantum mechanics of a string in $aAdS_5$ together with Kruskal structure of AdS black holes gives rise to the expected stochastic dynamics of a quasi-particle in a thermal bath. The Kruskal structure is needed to reproduce the dynamics of the quasi-particle on the Schwinger-Keldysh contour. After initially considering a particle at rest I extend the results to quarks moving with finite velocity. With the stochastic dynamics of a fast quark clarified, I compute the rate of induced photon bremsthralung associated with the fast heavy quark and compare the results to perturbation theory. Finally I compute the drag of heavy quarkonia in AdS/CFT and discuss the relevance of these results to heavy ion collisions.

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