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Dear Truesdell

I enjoyed reading your paper on particles impinging upon wedges. You have made it very clear that, in cases like this one, classical mechanics leaves one in the lurch, since it does not even afford the means to compute the probabilities for the various possible trajectories.

I guess there are two ways to construct a more comprehensive theory capable of giving unique (though stochastic) solutions to your problem. One is to enrich classical dynamics with probability assumptions, the other is to replace the former with a totally different theory having probabilities at its very basis.

The two courses have of course been tried. The 2nd gave rise to quantum mechanics. A quantum physicist recognizes your problem as a typical quantum mechanical problem, i.e. one that can be posed and solved within QM but not within CM.

The first course was attempted by Alfred Landé over two decades ago. If I don't misremember after so long, his proposal was to try to explain the scattering of particles by crystal lattices by/classical / using models of the kind you treat in your paper (an array of wedges), retaining the classical equations of motion and enriching them with probability assumptions (in the case of the symmetric wedge, p(left) = p(right) = ½ for a nonspinning particle). He succeeded in building an <u>ad hoc</u> theory, i.e. one that might account for that class of problems but incapable of handling any others, such as more general scattering problems and problems of stationary states of atoms or molecules.

Is there a third way? I suspect you have one in the oven. Let me see the cake when ready.

I hope I have not riled you unnecessarily (i.e. without evoking any fruitless thoughts).

Cordially

Mario Bunge