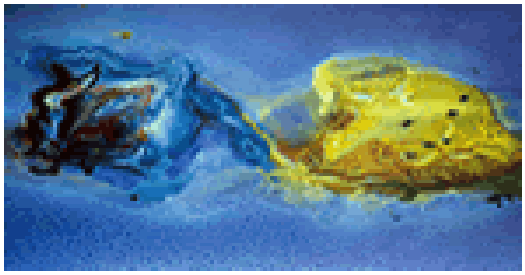

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New view of melting nuclear matter into quark matter

Friday 3 August 2018 14:00 (20 minutes)

We propose a new view of crossover between nuclear and quark matter. There are already some theoretical discussions on a percolation picture to describe how quark degrees of freedom would appear. In such a picture of classical percolation, however, it was overlooked that nuclear interactions also contribute to quark mobility, and the physical mechanism to make quark wave-functions localized was unclear. We point out that a more realistic situations should be closer to quantum percolation, in which the Anderson localization should be the physical mechanism to make the system be an insulator, that is interpreted in the QCD context as a color confined state. We present a simple model and give a rough estimate of crossover point beyond which quark matter is realized.

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