Re: Entropy question

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- *From*: Andy Resnick <andy.resnick@xxxxxxxxxx>
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Zigoteau,

I got some of your references (Petrov's is not currently available either electronically or in print here)− thanks.

Zigoteau wrote:
<snip>

> It is strange that none of your papers references any of Blake's work, or Petrov's for that matter. As I said, Blake's theory gives a reasonable fit to the data I have, especially when it is complemented for high meniscus velocities by the Voinov/Cox theory as Petrov has done.

Funnily enough, I just came across a paper

Golestanian, R. and Raphael, E., Phys. Rev. E 64 (2001) 031601

That compares the Blake theory with the de Gennes theory− I guess what I call Dussan's work, everyone else calls de Gennes theory (do you have his Rev. Mod. Phys. paper, BTW? It's most excellent). Apparently, they make very different predictions, but I don't believe any definitive experiment has been performed yet.

In any case, I'm still going through the above paper, but I did look through the Blake papers, and I believe my point is still correct: there is no complete solution to the problem of contact line motion.

Blake's theory clearly neglects dissipation, and Blake himself states that his theory is good for a limiting case: he begins with the Young equation, and claims that all contact line motion results from the bulk fluid "rolling over" the solid. This is ok for low Capillary number flow, but hardly the general case.

He also disputes the idea of an "apparent" contact angle, and

specifically addresses Dussan's work. But, as his own experiments show, there is significant viscous bending of the interface near the three−phase line, and yet he does not state how he determines what the contact angle is from images.

To be sure, I have to spend more time on the papers: I only just started reading them! But, I am unconvinced that Blake's theory solves the issue.

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