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# Mosh Pit Mechanics, Chattering Gazelles, and Bouncing Baby Shampoo

*Physics Phun in the Phorthcoming Physical Review*

What do gabby gazelles, mosh pits and jumping shampoo jets have in common? They're all covered in upcoming Physical Review papers. (This image is a mash up of pictures from Wikimedia Commons. Details and rights info are here, here and here.)

Week after week, the American Physical Society journals are chock full of some of the most important physics papers published anywhere. Importance, of course, doesn't necessarily make something interesting to anyone outside the field. Every once in a while, though, we get a handful of papers that are significant enough to get into the Physical Review journals, including the flagship Physical Review Letters, as well as appealing to people who don't necessarily spend their days hunkered down in a lab or scribbling away on an equation-covered blackboard.

After a quick glance at papers currently accepted for eventual publication in the Physical Review, I've found three that I can't wait to read. Topping my list is a look at the surprisingly simply collective motions that take place in mosh pits. In case you've never been in one, a mosh pit is usually an area near the stage during a concert where the most rabid fans can enjoy the show while being slammed around by dozens of other equally rabid fans. We covered this very research before, when it was being presented at the 2013 APS annual meeting in Baltimore, and it's worth checking out our older piece if you want to see how a crowd of crazy kids is like a flock of birds or a swirling gas. The interesting thing to me is that many people I spoke to back in March thought the research was nothing but a frivolous distraction for a few grad students who really should have been concentrating on their dissertations, not hanging out with hoards of death metal moshers. With the study soon to appear in the world's greatest physics journal, I wonder who's laughing now?

I'm nearly as eager to read about a simulation of Mongolian Gazelles as they wander the steppes of Eastern Mongolia in search of food and, apparently, hollering to each other to "Come and get it!" I had never heard of Mongolian Gazelles before, and hadn't realized that gazelles of any type made noises, much less called other gazelles to dinner. That means that in simply reading one abstract, I've already learned three entirely new things! I can't wait to see the actual paper to find out what other gazelle-related wonders it may contain.

The third forthcoming paper I stumbled across had me worried for a bit. It seems that shampoo can sometimes leap out of your hand as you're pouring it from the bottle in preparation to wash your hair. It's not something I've ever experienced, although it makes my eyes water in anticipation of an unprovoked shampoo attack the next time I take a shower. While it's new to me, I've learned that the phenomenon is well known, and is called the Kaye effect. Check out the video below for some eye-endangering examples.

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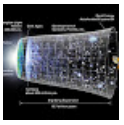

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I am sad - horrified really - to learn that some NASA scientists have caught cold fusion madness . As is so often the case with

The new twist, in the paper soon to be published in Physical Review E, is that these jets of soap don't occur for the reason usually given. In the past, most people who studied the effect assumed it had something to do with the fact that shampoo doesn't flow like normal (so-called Newtonian) fluids. Not so, it turns out. As the researchers say in their abstract, " . . . we show unambiguously that the jet slides on a lubricating air layer."

Now that we know the truth, I can only assume that a solution (other than wearing protective goggles to bathe, as I plan to do tomorrow) can't be far behind. One possibility that comes to mind, assuming they're right about the lubricating air, is to shower in an evacuated vacuum chamber. No air, obviously, means no bouncing soap jets. NASA could probably work that out with some sort of pressure suit arrangement. Getting access to your hair through the helmet is going to be tough. But hey, they put a man on the moon, and are currently working on at least one impossible science project and another nearly impossible one - and showering isn't exactly rocket surgery.

Posted by Buzz Skyline at 5/16/2013 03:09:00 PM

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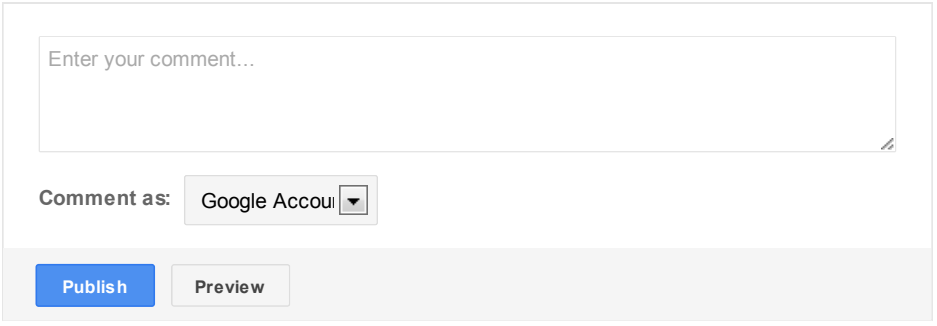


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