

CZYTAMY PO ANGIELSKU**Physics Project Scores
in Siemens Westinghouse Competition***Physics Today*, April 2002

While other students their age were off on their summer vacations, Shira Billet and Dora Sosnowik, seniors at the Stella K. Abram High School for Girls in Hewlett Bay Park, New York, were putting time in at the lab. Their work paid off last December when they placed first in the team category of the 2001 Siemens Westinghouse Science and Technology Competition. They shared the \$100 000 prize for their viscometer for ultrathin films.

In Billet and Sosnowik's viscometer, two distinct layers of liquid polymers are painted on a silicon wafer, with the more viscous film on top. The difference in surface tension between the two films causes the upper layer to dewet, a process similar to water beading into droplets on the hood of a car. The dewetting forms holes in the upper film, exposing the lower film, whose viscosity is then calculated from the rate of hole growth. „We were interested in this topic,” says Billet, „Because it's very difficult to measure the viscosity of thin-film lubricants using existing methods and [we] wanted to get involved with a modern and real problem.”

And they succeeded says Miriam Rafailovich, director of the NSF Materials Research Center at SUNY Stony Brook and Sosnowik's mentor. Rafailovich predicts the new method „will have far-reaching consequences in the fields of electronics and micromechanical systems.”

Billet and Sosnowik, whose interest in science was sparked by their chemistry teacher, will use their winnings to pay for college. Billet plans to major in chemistry or journalism and Sosnowik wants to become either a musician or doctor.

Dictionary:**viscometer** – lepkościomierz**film** – cienka warstwa**layers** – warstwy**surface tension** – napięcie powierzchniowe**dewet** –nie zwilżać**beading** –skroplenie**hood** – maska samochodu**lubrication** – smarowanie