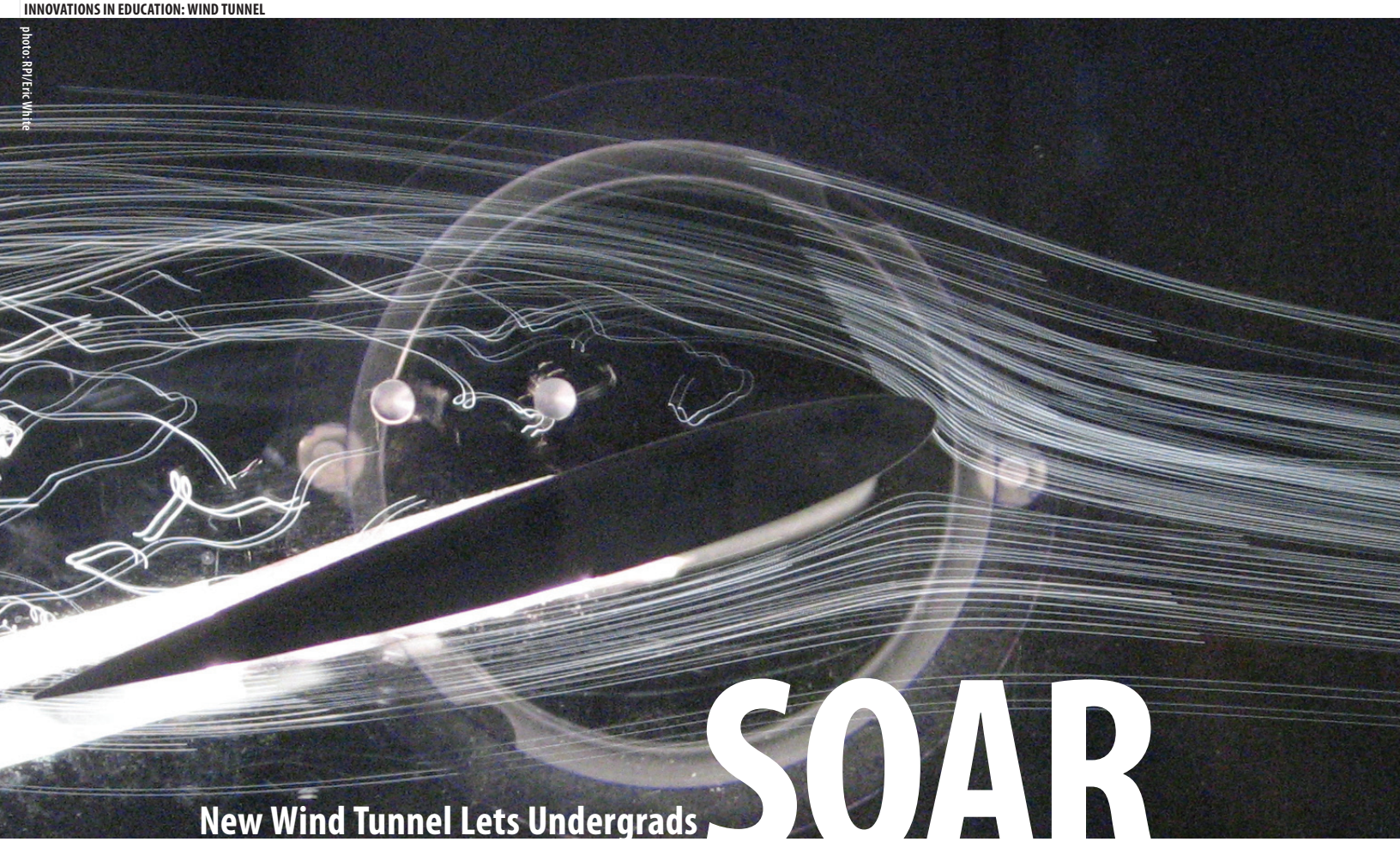


Photo: RPI/Eric White

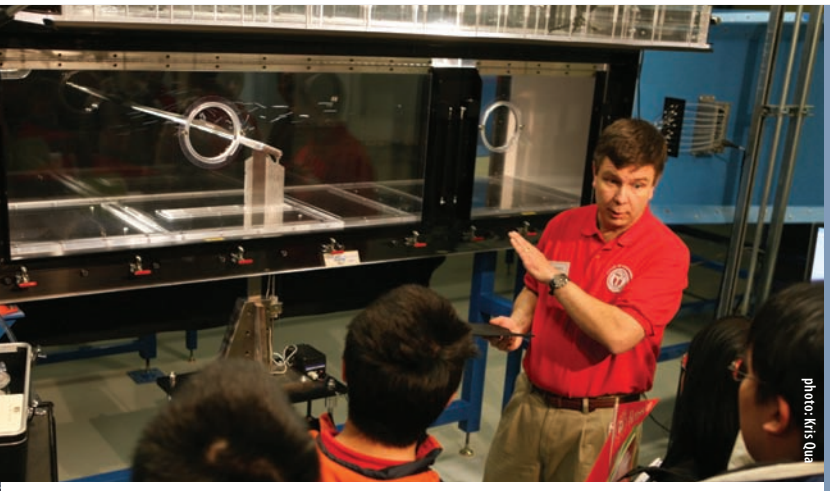
New Wind Tunnel Lets Undergrads SOAR

With the tunnel's helium-bubble visualization system, Rensselaer undergraduates can see the airflow as never before. As the air flows from right to left, distinct areas of flow separation appear to the left of the airfoil.

This past fall, students in Rensselaer's Mechanical, Aerospace, and Nuclear Engineering (MANE) department began using its newest piece of equipment, a subsonic wind tunnel. The closed-loop tunnel features a 2x2x8 test section, with a two-stage 200 HP fan providing continuously variable speeds from 10 to over 300 feet per second.

While the wind tunnel is research quality, its primary use is for undergraduate education. In the senior-level *Fluid Dynamics Laboratory,* the instruments and tunnel elements are introduced to the students sequentially, allowing for more complex experiments with only modest training on the equipment in each session. Thus, as they proceed, students gain a working knowledge of the equipment while focusing mainly on the experiment itself and the flow phenomenon involved. This also allows more sections of the classes to be accommodated, so each student has more hands-on time with the equipment.

The tunnel also plays a role in capstone engineering classes such as *Fixed Wing Aircraft Design,* where it is used to test the student design team vehicles.



To control the wind tunnel, Technical Manager Eric White '84 uses a Rensselaer-developed, Labview-based data acquisition and control system.

The wind tunnel lab features a new state-of-the-art instrumentation suite. Controlling the tunnel is a Rensselaer-developed, Labview-based data acquisition and control system, which also tracks operating conditions. Measurements of pressure, detailed velocity, and aerodynamic forces can be recorded. Also, the computer-controlled movable top panel and three-dimensional traverse system allow probes to be positioned throughout most of the test section for detailed surveys.

This spring, the lab is adding a neutrally buoyant helium bubble flow visualization system to the available tunnel instruments. "This, combined with the traverse system and the Rensselaer-designed probes, which allow us to vary the position of the bubble injection, presents an extremely useful device for 'seeing' the flow," said Eric White '84, technical manager for MANE. "As such, the new system will be an invaluable instructional tool."

The closed-loop tunnel features a 2x2x8 test section, with a two-stage 200 HP fan providing continuously variable speeds from 10 to over 300 feet per second.

Follow Your Dream, Engineer Tells High School Girls

Tracy Mack-Askew '98

It's cool to be whoever you are, no matter what interests you. That was part of the message from Tracy Mack-Askew '98, keynote speaker at Rensselaer's 10th annual Design Your Future Day, which brings together 11th grade girls from all over the Northeast to learn more about science and technology fields.

Mack-Askew, an automotive design and systems engineer for General Motors, told the girls not to worry about labels like "geek" or "nerd," but to stay focused on their dreams. "Our country needs bright, capable scientists whose different perspectives spawn new ideas, technologies, and innovations," she remarked.

The girls had their choice of 12 hands-on sessions with names like Choosing a Career That's Right for You, Investigating Molecular Pathogens, Polymer Membrane Fuel Cells, Put the Pedal to the Metal, Who Done It, The Chemistry of Crime Scenes, Who Wants to be a Millionaire? and Whatever You Think Architecture Is, It's Not.

An alumni panel discussion rounded out the event. Attendees were able to meet and ask questions of panelists who are working in or toward a high-tech career.

Attendance at this year's event was extraordinarily high: 140 students and nearly three times the usual number of parents. Barbara Ruel, Rensselaer's director of women in engineering and diversity, takes this as a very positive sign. "The message is getting out there to young women that they're perfectly capable of successful careers in science and technology," she said. "This program gives them the chance to explore their options."

Ashley Charnitski from Dushore, Penn., made the most of it. "I really appreciated the opportunity to further explore the Rensselaer campus and learn more about engineering," she said. "This will ultimately influence my career and college decision."

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