

New Associated Projects Announced

Two new, large-scale CCEFP-associated projects have been announced:

1. The University of Minnesota has been awarded an \$8-million wind power research center, funded by the Department of Energy (DOE). The major fluid power component of this project is the development of hydrostatic power transmission technology for wind power, a collaborative effort between the University of Minnesota and Eaton Corp.
2. Vanderbilt University has received a major contract for new research from the Martin Companies to investigate the use of miniaturized fluid power in medical Magnetic Resonance Imaging (MRI) applications. This research will develop miniature MR-compatible fluid-power actuation that offers no distortion to the image. Fluid power is one of only a few forms of actuation that has the potential for 100% MR compatibility.

Current CCEFP research focuses on four test beds spanning five orders of magnitude of power and weight: an excavator, a hydraulic hybrid passenger vehicle, a rescue robot, and an orthosis. The Center plans to expand into even larger and smaller applications—wind power in the 1 MW range and medical micro-robots in the micro-watt range.

CCEFP Faculty Member Awarded NSF Major Research Instrumentation Grant

CCEFP faculty member Professor Zongxuan “Sunny” Sun (University of Minnesota) was recently awarded an \$800,000 NSF MRI (Major Research Instrumentation) grant. The grant will enable CCEFP to construct a hydrostatic dynamometer. Because of the superior power to weight ratio of hydraulics, a hydrostatic dynamometer will have a much lower moment of inertia than a conventional electric dynamometer. This allows the hydrostatic dynamometer to have a higher speed-of-response allowing it to simulate realistic engine transients. Understanding how an engine behaves during these rapid transients will provide important unknown information on fuel economy and emissions. The hydrostatic dynamometer will be an essential research tool for optimizing the control approach for the Hydraulic Passenger Vehicle (HPV) test bed.

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FLUID POWER