

Last month I had opportunity to present my work at CESEP'11, the fourth international conference on Carbons for Energy Storage/Conversion and Environment Protection, following the initiatives of the French, Polish and Spanish Carbon Groups, the organizers of the past meetings in Orléans, Krakow and Malaga in 2005, 2007 and 2009, respectively. The conference was organized by the French Carbon Group (GFEC) and was held in Vichy, France September 25-29, 2011. André Hamwi and François Begin, two of the most respected members of the field, acted as Conference Chairs.

My talk, titled "High Power Carbon Nanotube Supercapacitors with Ionic Liquid Electrolyte Operating at Room Temperature" was very well received, and the following discussion and off the stage helped sharpen my presentation and suggested new experiments and avenues of research to explore. The main focus of my work is Electric double-layer capacitors, which while surpassing the specific power capabilities of conventional batteries by orders of magnitude, similarly lag behind in specific energy density. By using electrolytes with wider electrochemical stability windows energy density can be significantly increased; however, recent interest in using room-temperature ionic liquids (ILs) as electrolytes for this purpose have met with significant penalties to power capabilities, due to the lower ionic conductivity of ILs at ambient temperatures. My co-authors and I have studied the performance of CVD-grown carbon nanotube (CNT) electrodes with a room-temperature ionic liquid as an electrolyte. This material shows a very high specific power (>600 kW/kg) while also having high specific energy (>60 Wh/kg) when operated at room temperature. I discussed effect on performance of electrode mass loading and operating temperature.

I'd like to thank the Office of International Programs for their support, which greatly helped make this trip possible. The interactions with other members of the field will go a long way to spark new insights and future collaborations.

