

Abstract Submitted  
for the MAR09 Meeting of  
The American Physical Society

**Digital Batteries**<sup>1</sup> ALFRED HUBLER, University of Illinois at Urbana-Champaign — The energy density in conventional capacitors is limited by sparking. We present nano-capacitor arrays, where - like in laser diodes and quantum wells [1] - quantization prevents dielectric breakthrough. We show that the energy density and the power/weight ratio are very high, possibly larger than in hydrogen [2]. Digital batteries are a potential clean energy source for cars, laptops, and mobile devices. The technology is related to flash drives. However, because of the high energy density, safety is a concern. Digital batteries can be easily and safely charged and discharged. In the discharged state they pose no danger. Even if a charged digital battery were to explode, it would produce no radioactive waste, no long-term radiation, and probably could be designed to produce no noxious chemicals. We discuss methodologies to prevent shorts and other measures to make digital batteries safe. [1] H. Higuraskh, A. Toriumi, F. Yamaguchi, K. Kawamura, A. Hubler, Correlation Tunnel Device, U. S. Patent No. 5,679,961 (1997) [2] Alfred Hubler, <http://server10.how-why.com/blog/>

<sup>1</sup>Supported by NSF Grant DMS 03-25939 ITR.

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Date submitted: 20 Nov 2008

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