

## PHOTOVOLTAIC ICE MACHINE USING STANDARD VARIABLE SPEED INDUCTION MOTOR DRIVE

Carlos Driemeier and Roberto Zilles

Instituto de Eletrotécnica e Energia, Universidade de São Paulo, Avenida Professor Luciano Gualberto, 1289,  
Cidade Universitária, 05508-010, São Paulo, Brasil [driemeier@iee.usp.br](mailto:driemeier@iee.usp.br)

### **Abstract**

We present the adaptation of a commercially available ice machine for autonomous, battery-less operation with photovoltaics (PV). Refrigeration is performed with an open reciprocating compressor driven by a three-phase induction motor whose speed is set by a variable speed drive (VSD) aiming at instantly matching available PV power. A 1040  $W_p$  prototype, which produces up to 27 kg of ice per day, was built and characterized under real sun conditions.