

# COMPTES RENDUS PHYSIQUE

Tome 18 (2017) – N° 2 – février



Cover illustration / *Illustration de couverture* : © Daniel de Fornel, Atelier Isatis, Dijon, France.

## DOSSIER

### Energy and radiosciences / *Énergie et radiosciences*

Journées scientifiques URSI-France 2016 – Cesson-Sévigné (Rennes), 15–16 March 2016 / 15–16 mars 2016

Coordinators / *Coordinateurs* : Smaïl Tedjini, Apostolos Georgiadis

- Foreword  
**Smaïl Tedjini, Apostolos Georgiadis** ..... 73
- Wireless energy transfer: Dielectric lens antennas for beam shaping in wireless power-transfer applications  
**Ricardo Gonçalves, Nuno B. Carvalho, Pedro Pinho** ..... 78
- On energy harvesting for augmented tags  
**Dahmane Allane, Yvan Duroc, Gianfranco Andia Vera, Rachida Touhami, Smail Tedjini** ..... 86
- Electrostatic vibration energy harvester with 2.4-GHz Cockcroft–Walton rectenna start-up  
**Hakim Takhedmit, Zied Saddi, Armine Karami, Philippe Basset, Laurent Cirio** ..... 98
- Multiband rectenna for microwave applications  
**Abderrahim Okba, Alexandru Takacs, Hervé Aubert, Samuel Charlot, Pierre-François Calmon** ..... 107
- Theoretical and practical limits of superdirective antenna arrays  
**Abdullah Haskou, Ala Sharaiha, Sylvain Collardey** ..... 118
- Performance of low-power RFID tags based on modulated backscattering  
**Zeinab Mhanna, Alain Sibille, Richard Contreras** ..... 125
- Energy and angular momentum transfers from an electromagnetic wave to a copper ring in the UHF band  
**Olivier Émile, Christian Brousseau, Janine Émile, Kouroch Mahdjoubi** ..... 137
- Fundamental energetic limits of radio communication systems  
**Jean-Yves Baudais** ..... 144

*Continued on the next page*

*Contents (continued)*

- Wavelet modulation: An alternative modulation with low energy consumption  
**Marwa Chafii, Jacques Palicot, Rémi Gribonval** ..... 156
- Analysis of the faster-than-Nyquist optimal linear multicarrier system  
**Alexandre Marquet, Cyrille Siclet, Damien Roque** ..... 168
- Turbo-FSK, a physical layer for low-power wide-area networks: Analysis and optimization  
**Yoann Roth, Jean-Baptiste Doré, Laurent Ros, Vincent Berg** ..... 178