

# CONTENTS

## Review

- 81 **Biochar in bioenergy cropping systems: impacts on soil faunal communities and linked ecosystem processes**  
*Sarah A. McCormack, Nick Ostle, Richard D. Bardgett, David W. Hopkins and Adam J. Vanbergen*

## Original Articles

- 96 **Is biochar a source or sink for polycyclic aromatic hydrocarbon (PAH) compounds in agricultural soils?**  
*Richard S. Quilliam, Sally Rangecroft, Bridget A. Emmett, Thomas H. Deluca and Davey L. Jones*
- 104 **Production and characterization of slow pyrolysis biochar: influence of feedstock type and pyrolysis conditions**  
*Frederik Ronsse, Sven van Hecke, Dane Dickinson and Wolter Prins*
- 116 **Nature of water-biochar interface interactions**  
*Pellegrino Conte, Valentina Marsala, Claudio de Pasquale, Salvatore Bubici, Massimo Valagussa, Alessandro Pozzi and Giuseppe Alonzo*
- 122 **The effect of pyrolysis conditions on biochar stability as determined by three methods**  
*Kyle Crombie, Ondřej Mašek, Saran P. Sohi, Peter Brownsort and Andrew Cross*
- 132 **Assessing potential of biochar for increasing water-holding capacity of sandy soils**  
*Andres S. Basso, Fernando E. Miguez, David A. Laird, Robert Horton and Mark Westgate*
- 144 **Torrefaction/biochar production by microwave and conventional slow pyrolysis – comparison of energy properties**  
*Mark J. Gronnow, Vitaliy L. Budarin, Ondřej Mašek, Kyle N. Crombie, Peter A. Brownsort, Peter S. Shuttleworth, Peter R. Hurst and James H. Clark*
- 153 **Co-generated fast pyrolysis biochar mitigates green-house gas emissions and increases carbon sequestration in temperate soils**  
*Catherine E. Stewart, Jiyong Zheng, Jorin Botte and M. Francesca Cotrufo*
- 165 **Impact of biochar field aging on laboratory greenhouse gas production potentials**  
*Kurt A. Spokas*
- 177 **Distributed biochar and bioenergy coproduction: a regionally specific case study of environmental benefits and economic impacts**  
*John L. Field, Catherine M. H. Keske, Greta L. Birch, Morgan W. Defoort and M. Francesca Cotrufo*
- 192 **An energy-biochar chain involving biomass gasification and rice cultivation in Northern Italy**  
*Emanuele Lugato, Francesco P. Vaccari, Lorenzo Genesio, Silvia Baronti, Alessandro Pozzi, Mireille Rack, Jeremy Woods, Gianluca Simonetti, Luca Montanarella and Franco Miglietta*
- 202 **Biochar and its effects on plant productivity and nutrient cycling: a meta-analysis**  
*Lori A. Biederman and W. Stanley Harpole*

## Technical Advance

- 215 **A method for screening the relative long-term stability of biochar**  
*Andrew Cross and Saran P. Sohi*
- 221 **Establishing release dynamics for plant nutrients from biochar**  
*Teri E. Angst and Saran P. Sohi*