



## Nonlinear Differential Equations and Functional Analysis: Theory and Applications

Guest Editor:

**Prof. Dr. Jenny Harrison**

Department of Mathematics,  
University of California, Berkeley,  
CA 94720, USA

Deadline for manuscript  
submissions:

**closed (30 September 2022)**

### Message from the Guest Editor

The directed system is not apparent when looking at currents, especially when considering operators, but becomes clear when turning the variance around. Whitney believed that methods based on domains were primary, so that, in particular, the boundary operator could be defined directly, not as the dual to the exterior derivative. However, he did not have the entire directed system of domains. His sharp and flat chains of geometric integration theory came close, but neither captured the required properties. It was not until differential chains were introduced that a directed system of domains was found solving the conjecture. This theory gives analysis on the fractals in a natural setting and includes generalizations of the integral theorems of calculus to nonsmooth domains with nonsmooth boundaries. Classical operators of geometry, such as boundary, Hodge star and pushforward, have direct definitions on polyhedral approximations and are continuous.

A goal of this special edition is to present research papers relating the differentiability class of functions and the dimension of domains.





an Open Access Journal by MDPI

## Editor-in-Chief

**Prof. Dr. Francisco Chiclana**  
School of Computer Science and  
Informatics, De Montfort  
University, The Gateway,  
Leicester LE1 9BH, UK

## Message from the Editor-in-Chief

The journal *Mathematics* publishes high-quality, refereed papers that treat both pure and applied mathematics. The journal highlights articles devoted to the mathematical treatment of questions arising in physics, chemistry, biology, statistics, finance, computer science, engineering and sociology, particularly those that stress analytical/algebraic aspects and novel problems and their solutions. One of the missions of the journal is to serve mathematicians and scientists through the prompt publication of significant advances in any branch of science and technology, and to provide a forum for the discussion of new scientific developments.

## Author Benefits

**Open Access:** free for readers, with article processing charges (APC) paid by authors or their institutions.

**High Visibility:** indexed within Scopus, SCIE (Web of Science), RePEc, and other databases.

**Journal Rank:** JCR - Q1 (Mathematics) / CiteScore - Q1 (General Mathematics)

## Contact Us

---

*Mathematics* Editorial Office  
MDPI, Grosspeteranlage 5  
4052 Basel, Switzerland

Tel: +41 61 683 77 34  
[www.mdpi.com](http://www.mdpi.com)

[mdpi.com/journal/mathematics](http://mdpi.com/journal/mathematics)  
[mathematics@mdpi.com](mailto:mathematics@mdpi.com)  
[X@MathematicsMDPI](https://twitter.com/MathematicsMDPI)