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Editorial

In March of 2024, a new direction board of CIM took office and the editorial board of the CIM bulletin was renewed. The editorial board is committed to continue the efforts of fulfilling the bulletin's main goals of promoting Mathematics and especially mathematical research.

In this issue, we include three articles on topical research subjects. One of them reviews the development of the theory of impulsive dynamical systems, which model real-world phenomena characterized by abrupt changes, and proposes future directions for its further advancement.

Another article reviews the main steps in the proof of Fermat's Last Theorem and explores Darmon's program for addressing the generalized Fermat equation $Ax^q + By^r = Cz^p$. Further, it highlights recent advances achieved by integrating the classical techniques with insights from Darmon's approach. The last article provides an elegant and concise exposition of the Lie theory needed to appreciate the eightfold way in particle physics.

Inserted in the cycle of historical articles, we feature an article dedicated to the Portuguese texts on the calculus in the 18th century. It explores the gradual introduction of the calculus in Portugal, emphasizing the contributions of Jacob de Castro Sarmento, the influence of Bézout's textbook and the work of José Anastácio da Cunha, the most original Portuguese mathematician of the 18th century.

We include an insightful article on the theme of Mathematics and Music, presenting a beautiful historical journey about the numerous interactions between these two fields, from Ancient Greece to the modern technological era.

We celebrate that Professor Jorge Buescu was awarded the *Grande Prémio Ciência Viva 2024*, that Professor José Francisco Rodrigues has been elected President of the Lisbon Academy of Sciences and that Professor Luís Nunes Vicente has been selected as a Fellow of the Society for Industrial and Applied Mathematics (SIAM).

As usual, we publish several summaries and reports regarding the activities partially supported by CIM during the last year.

We recall that the bulletin continues to welcome the submission of review, feature, outreach and research articles in Mathematics and its applications.

Maria Joana Torres

Centro de Matemática e Departamento de Matemática, Universidade do Minho