A Commemorative Special Issue in Honor of Prof. Carl H. Brans: At the Frontier of Spacetime

Guest Editors:

Prof. Dr. Jan Sładkowski
Institute of Physics, University of Silesia, 75 Pułku Piechoty 1, Pl 41-005 Chorzów, Poland

Dr. Jerzy Król
Institute of Physics, University of Silesia, PL-40007 Katowice, Poland

Dr. Torsten Asselmeyer-Maluga
German Aerospace Center (DLR), 10178 Berlin, Germany

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Message from the Guest Editors

The presence of exotic differential structures on differential manifolds was first discovered in the middle of the 20th century for five-dimensional and higher manifolds. In the 1980s, there was a real breakthrough in four-dimensional manifolds using gauge-theory methods inspired by theoretical physics. With these methods, it was possible to infinitely construct many exotic smoothness structures on many four-dimensional manifolds. Among the many surprising innovations was the confirmation that the seemingly trivial space R^4 had an infinite number of manifolds. Carl Brans was the first to point to the importance of this fact in theoretical physics, in particular with regard to general relativity. The Brans conjecture became a driving force in this topic for many years.

The primary goal of this Special Issue is to commemorate the outstanding mathematical physicist Carl Brans; discuss the importance of the existence of exotic differential structures for modelling the physical world; and address the general interplay between mathematics and physics.

We encourage scientists active, as well as historians and philosophers of science, as well as other issues related to the subject.

Special Issue

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

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