



## Professor Haris Skokos

### Department of Mathematics & Applied Mathematics Faculty of Science

Professor Haris Skokos is a world-leading figure in the mathematical field of nonlinear dynamics. His cutting-edge contributions to the field include the design of mathematical tools for the analysis of chaotic systems and the application of these tools to problems of astronomy, dynamics of particle accelerators, biological physics, and physics of solid state.

Haris has published 84 papers in international peer-reviewed journals, 46 papers in conference proceedings, two book chapters, and a research monograph. This is a high publication output, well above an expected average in Applied Mathematics. He served as a guest editor for several special issues of international journals and a volume of the 'Lecture Notes in Physics' series. His work was presented at 83 conferences, which includes 33 invited talks. Haris was the principal organizer of one local and three international conferences.

The highlight of his career is the invention of novel chaos-detection techniques based on the so-called Smaller Alignment Index and its generalized version (SALI and GALI, respectively). Together with the Lyapunov exponents (invented in the XIX century), SALI and GALI indices introduced by Haris comprise the main numerical tools for the study of systems with complex behaviour.

Haris' comprehensive review of Lyapunov exponents has received a broad international recognition and became a basic reference point in the field. His book on modern developments in Hamiltonian systems (published by Springer Verlag) can be found in any nonlinear dynamist's library. His studies of the chaotic dynamics in disordered nonlinear lattices, together with the development of efficient numerical integration schemes (the so-called symplectic integrators) have also proved to be highly influential.

The impact of the work Haris is doing is reflected by 4 779 citations in Google Scholar, 2 824 in the Web of Science, and 2 939 in Scopus. His H-index is 35 on Google, 26 in WoS, and 26 on Scopus. Invited talks at numerous international conferences along with the invitations to serve as a member of the editorial board of 10 international peer-reviewed journals attest to his world-leading role in nonlinear dynamics.

The scientific achievements of Prof Skokos were recognized by the UCT Science Faculty through conferring on him a Merit Award in 2022–2023. His international standing is reflected by his NRF B1 rating (achieved in 2015 and confirmed in 2021).

I wish to nominate Professor Haris Skokos, a pioneer of nonlinear dynamics and a leading international scholar in Applied Mathematics, for the membership of the UCT College of Fellows.

**Nominator:** Professor Igor Barashenkov