2nd Workshop on
Time-Reversal Symmetry in Dynamical Systems
1-3 December 1999
Department of Mathematics, Imperial College (London)
Organized by Jeroen S.W. Lamb

The *2nd Workshop on Time-Reversal Symmetry in Dynamical Systems* was held at the Department of Mathematics of Imperial College on 1-3 December 1999. The first day of this meeting was earmarked as a London Dynamics Seminar and a meeting of the *South Eastern Bifurcation Theory Group*.

The main theme of the workshop has been be the dynamical consequences of spatiotemporal symmetry in dynamical systems, in particular time-reversal symmetry. The field comprises the study of dynamical systems (ordinary differential equations and diffeomorphisms) that possess symmetry properties which involve a reversal of the time-direction.

The Workshop on Time-Reversal Symmetry in Dynamical Systems has brought together scientists from the fields of (applied) mathematics and (theoretical) physics who are currently actively involved in research on dynamical systems with spatiotemporal symmetry, in particular time-reversal symmetry (see Section 2 for the full list of participants). The meeting has been a very succesful small scale follow-up of the two-week *Workshop on Time-Reversal Symmetry* held at the University of Warwick in December 1996 (see Physica D **112** (1998) for its proceedings).

The workshop centered around the development of a theory for reversible equivariant systems. Participants presented new results in this context on research projects that were launched after the 1996 workshop, and other participants represented the increasing interest in the analysis of (relative) periodic solutions in reversible equivariant Hamiltonian systems. The atmosphere during the workshop was vibrant and without doubt a stimulus for further research efforts in this field.

The first day of the workshop (wednesday December 1st) had been earmarked as a meeting of the *Southeastern Bifurcation Theory Group* (LMS scheme 3 collaboration coordinated by D. Chillingworth, linking the University of Southampton, the University of Surrey, the University of Cambridge and Imperial College) and – at the same time – as a *London Dynamics Seminar* (a joint initiative by Imperial College, Queen Mary and Westfield College, and University College London). In this way, we aimed to attract the broader dynamical systems community in the UK to a selection of talks reviewing current issues and recent developments in the topical field of (Hamiltonian) dynamical systems with symmetry, leaving more technical presentations for the remaining two days.

In summary, the achievements of this workshop have been two-fold:

(i) This second Workshop on Time-Reversal Symmetry in Dynamical Systems has followed up on the conclusions of the first workshop held in 1996. In particular, the second Workshop on Time-Reversal Symmetry in Dynamical Systems, materialized the success of the first workshop in the sense that there was a notably increased coherence in the approach towards studying time-reversal symmetry in dynamical systems, and broad consensus about the main direction for future research (developing unified theories dealing with time-reversal symmetry and equivariance simultaneously, in particular in the Hamiltonian context) .

(ii) The meeting succeeded in its aim to stimulate research and create a platform for new (national and international) collaborations between scientists in the field of reversible equivariant (Hamiltonian) dynamical systems, comprising both theory and applications. Current developments in the generic bifurcation theory for reversible equivariant Hamiltonian and non-Hamiltonian systems were reviewed and short- and medium-term aims formulated. But also other topics have received attention, such as homoclinic and heteroclinic orbits, algebraic properties of reversible dynamical systems, and the relatively unexplored field of non-holonomic reversible non-Hamiltonian mechanical systems,

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