Addendum to LOCNET Midterm Report

R.S.MacKay
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1 Publications

[MMS] in A.3 Other publications by YRs was written and accepted before the YR even became aware of LOCNET, so should be deleted.

2 Minor changes to Tables in Part C

Maniadis' dates The LOCNET-funded part of Maniadis' appointment at Saclay should be 1 Jul 01 – 30 Apr 03, making Saclay's YR months used so far 21.5 and committed 20.5.

Kastner's dates Kastner's appointment has been extended to 29 Feb 04, making Firenze's committed months 39, and their shortfall 0.

Neumann's scientific speciality P–14

Berger's country code AT would be a better code for Austria

3 Additional YR sketches

Arno Berger The dynamical behaviour of systems of any kind has been fascinating to me since long ago, at least since I was a mechanical engineering freshman at Vienna's University of Technology. Driven by the desire to see the mathematical structure behind many apparently different dynamical systems in classical mechanics, fluid dynamics and control theory I majored in mathematics, too. In 1997 I received a PhD in applied mathematics at Vienna's University of Technology. In my thesis I studied several applications of Conley index theory to more or less chaotic systems from mechanics.

Since 1997 I have been an assistant professor at the Institute of Mechanics in Vienna, and I have been giving courses for mechanical engineers, physicists as well as mathematicians. In my research, I am particularly interested in the interplay of the topological and the statistical approach to dynamical systems. *Chaos and Chance*, a textbook focusing on this interplay and partly based on courses I have given earlier, has been published with deGruyter in 2001.

In early 2001 I was awarded a MAX KADE fellowship for a one-year research visit at a leading American university, which I decided to spend at Georgia Tech. The focus of my work there was on coupled, spatially extended systems, but also on almost automorphic dynamics and on Benford's law on mantissa distribution. Concerning the latter L. Bunimovich, T. Hill and myself achieved a major breakthrough by showing that one particular logarithmic distribution can be found (quite often even generically) in many discrete and continuous-time systems. At Georgia Tech I also profited from the inspiring atmosphere at the recently founded Center for Nonlinear Science which is run jointly by the Mathematics and the Physics department and which provides a great place for research (most prominently on coupled chaotic systems and synchronization) and communication for visitors from all over the world.

From September 2002 on I am going to join the LOCNET network for half a year at the University of Warwick. I expect that my participation in LOCNET will deepen my knowledge in the field of coupled systems. I am confident that my previous experience in dynamical systems and ergodic theory will be useful for other participants of the network. Also, I am sure that the multi-national exchange of ideas and expertise brought about by LOCNET will provide an ideal basis for future collaborations.

Panagiotis Maniadis I studied physics at the Physics Department of the University of Crete. I got my undergraduate degree in Physics in 1996 and I continued my graduate studies. From October 1997 till February 2001 I prepared my PhD in the same institute. The subject of my PhD was "Numerical investigation of discrete breather dynamical properties in several ordered and disordered nonlinear lattices". During this period I had the chance to meet many members of the LOCNET project and attend some of the meetings. From February 2001 I started a post-doc at CEA/Saclay within the LOCNET project. My research is related with the study of the Targeted Energy Transfer in classical and quantum lattices and how this can be related with other problems like the breather mobility, the existence of quantum breathers, the electron transfer between molecules and some possible technological applications like the creation of Boolean operators using optical waveguides. We are also interested of the problem of Ultrasound Self induced transparency in glasses and how this can be explained based on the existence of Intraband multibreathers in the random systems.

Oliver Rudzick I was born in the western part of Berlin at April 12, 1967 where I attended elementary school and high school.

At the Technische Universität Berlin I studied physics for diploma degree. My diploma thesis dealt with the theoretical description of self-generated high-frequency current oscillations in semiconductor multilayer structures. In my thesis about nonlinear dynamics in modulation doped semiconductor multilayer structures I investigated a model describing current oscillations in structures consisting of GaAs- and n-doped AlGaAs layers. That was done under Prof. Eckehard Schöll in the Institute for Theoretical Physics.

After my diploma I did some work on the optimization of binary sequences (so called Merit Problem) using evolutionary algorithms. That was together with Prof. Werner Ebeling at the Institute of Physics of the Humboldt-Universität Berlin.

The subject of my PhD thesis was related to nonlinear dynamics in a more general context. I studied different scenarios of transitions between regular and chaotic dynamics in spatially extended systems. Among other things I modeled the synchronization of spatio-temporal dynamics with an external forcing using the periodically forced complex Ginzburg-Landau equation (CGLE). That work was done under Prof. Arkady Pikovsky in the Department of Physics at the Universität Potsdam

During a stay as postdoc at the Universidad Complutense de Madrid I continued working on the forced CGLE. I studied mechanisms for transitions to regimes with spatio-temporal intermittency related to the dynamics of localized jumps of the phase. That was done in collaboration with Prof. Manuel G. Velarde in the Unidad de Fluidos at the Instituto Pluridisciplinar.

In September 2002 I started working at INFM in Florence together with Prof. Roberto Livi in the LOCNET project. I am interested in doing some work about breather solutions in spatially extended systems and to investigate possible relations with pattern formation mechanisms.