

Scientific report of the Summer School and Workshop “Self-Organization in Turbulent Plasmas and Fluids”

The main goal of the TURB10 meeting which took place from May 3 through May 14, 2010 was to bring together leading scientists and young researchers from three neighboring fields, namely fluid turbulence, plasma turbulence, and dynamo theory. The meeting consisted of a one-week summer school - attended by 8 lecturers and about 70 participants from various countries - and a one-week international workshop with more than 80 participants. The latter focused on the topics of basic turbulence characteristics in plasmas and fluids (including the important question of universality), Lagrangian turbulence, structure formation and shear flows in turbulent systems, turbulence control, liquid metal and plasma dynamos, planetary dynamos, as well as turbulence in astrophysical systems. The talks are available on the internet at www.ipp.mpg.de/~mjpuesch/turb10

The quite unique scope of the meeting sparked a lot of interest internationally, so that it was overbooked by about a factor of two. Among the most prominent speakers were Profs. Bodenschatz, Brizard, Büchner, Carati, Christensen, Cowley, Eckhardt, Falkovich, Farge, Forest, Grauer, Hammett, Hansen, Hasinger, Jones, Krommes, Lathrop, Peinke, Pinton, Pumir, Rüdiger, Schlickeiser, Schneider, Schumacher, Shats, Stroth, Terry, Tilgner, Tsinober, Vassilicos, Wilkinson, and Zimbardo. At the same time, a large number of talented younger scientists presented very interesting oral and poster contributions. The participants came from a variety of different European and non-European countries including the US, Australia, Japan, Russia, Brasil, Argentina, and India.

According to the feedback of the participants, the meeting was very valuable for learning from and reaching out to the neighboring communities, and for establishing new contacts and connections. Putting one's own results into a broader perspective was conceived as helpful and important. Numerous cross-disciplinary topics were discussed, and common links discovered. People which had often been referring to each other's publications met personally for the first time. Also, a renewed sense of togetherness emerged from these two weeks which might well be the basis for further common activities and projects. Overall, the meeting may thus be judged as very successful.