

The benefit of European networks and international cooperation for the development of PIV.

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all participants to GARTEUR AG 19, EUROPIV 1 &2, PIVNET 1 &2 and PIV Challenge.

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The GARTEUR AG 19 in 1994 has been the start of a succession of European cooperative projects around the development of PIV which has ended only in 2008 with final workshop of the PIVNET 2 thematic network.

These projects which started at the end of the photographic recording of PIV and the very beginning of the digital recording has allowed to build strong and constructive links in the European PIV community, to speed up the development of the technique and its transfer to industrial applications and to strengthen the confidence in the PIV technique.

The GARTEUR AG 19 was the first step, for different groups in Europe, working on the development of the method, to know each other and to start cooperating on the recording and processing issues. A first database of photographic records was shared with the purpose of comparing processing algorithms.

The EUROPIV and EUROPIV 2 projects were two STREPs, funded by the EC, with the objective of developing the digital approach, the stereoscopic approach, the holographic approach to PIV and to demonstrate the potential of the method on test cases of industrial interest in industrial wind tunnels. The test campaign performed in the Airbus Bremen wind tunnel in EUROPIV was certainly a trigger for the industrial interest to the PIV technique which showed a potential which has stayed out of reach of Laser Doppler Velocimetry along the years.

The PIVNET and PIVNET 2 networks, coordinated efficiently by DLR, have played a key role in the rapid diffusion of the method to problems of all kind. By the organisation of a large number of demonstration workshops in real situations of industrial interest, the versatility and adaptability of the technique was largely demonstrated. Several large European facilities such as DNW, Towing tanks and scale 1 car wind tunnels decided to master and use the technique following the PIVNET demonstrations. Besides, these networks provided a framework for annual meetings of the PIV developers, linked to international conferences (Lisbon, PIV Symposium), where the problems encountered were freely presented and discussed. These workshops rapidly came to an international PIV challenge which took place in 2001, 2003 and 2005 and allowed to assess in quite details, the merits and drawbacks of the different PIV processing algorithms proposed by researchers around the world, but mostly in Europe. This networking activity triggered some fruitful cooperations, as for example the one resulting in the recent development of Tomo PIV.