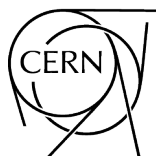


**ICFA Mini-Workshop on  
Impedances and Beam Instabilities in Particle Accelerators**

Benevento, Italy, 18–22 September 2017

Editors: V. Brancolini, G. Rumolo, M. R. Masullo and S. Petracca



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## **Abstract**

The ICFA Mini-Workshop on Beam Coupling Impedances and Beam Instabilities in Particle Accelerators was held in Benevento (Italy) from 18 to 22 September, 2017.

The workshop was intended initially to continue the tradition of dedicated conferences on beam coupling impedances in particle accelerators, initiated with the 2014 ICFA mini-Workshop on “Electromagnetic Wake Fields and Impedances in Particle Accelerators” held in Erice (organised by Vittorio Vaccaro, Maria Rosaria Masullo and Elias Métral). Therefore, the aim of the event was first of all to provide an up-to-date review of the subject of beam coupling impedances (theory & modelling, simulation tools, bench measurements, beam based measurements). Besides, it was decided to widen its scope to include recent advances on theory and simulations of beam instabilities.

The workshop was hosted by the University of Sannio in Benevento (Italy). Benevento is a world heritage city in Southern Italy, with remarkable monuments and fine pieces of arts, in a unique cultural and natural environment.

## Preface

The ICFA Mini-Workshop on Impedances and Beam Instabilities in Particle Accelerators, was held in Benevento, Italy, from 18 to 22 September, 2017. The rich scientific program of the workshop was defined and shaped by a strongly motivated International Advisory Committee, composed of worldwide experts who actively provided their inputs. The conference venue was the San Vittorino complex, located in the very center of the historical town of Benevento. The workshop was supported and sponsored by the University of Sannio, three ongoing large accelerator projects (High Luminosity LHC, LHC Injectors Upgrade, LHC Collimation), the European network ARIES and the INFN section of Naples. Moreover, it was held under the auspices of the Italian Physical Society (SIF). The main goal was to summon the accelerator community actively working in the field of impedances and beam instabilities, and discuss together recent advancements and breakthroughs while defining future directions. Eighty-four participants from different laboratories all around the world attended the workshop, with a strong representation of young accelerator physicists with little experience and plenty of enthusiasm. That's why all the speakers made their best effort to provide a solid educational background into their subjects, before highlighting novelties, challenges and open questions.

The workshop chairs also had the great pleasure to celebrate Prof. Vittorio G. Vaccaro on the occasion of the 50 years since the birth of the concepts of beam coupling impedance and stability charts, to which he gave fundamental contributions unanimously recognised by the whole community. The workshop also provided the opportunity to remember dearly Dr. Francesco Ruggiero, who passed away 10 years ago, by highlighting in the opening speech his amazing foresight into all the beam dynamics issues of LHC and all future machines.

The web sites of the CFA Mini-Workshop on Impedances and Beam Instabilities in Particle Accelerators are:  
<http://prewww.unisannio.it/workshopwakefields2017/>  
<https://agenda.infn.it/conferenceDisplay.py?ovw=True&confId=12603>

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