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Mobility Story: Maurizio Dapor

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Maurizio Dapor shares his 3-month-studying experience in Spain at the University of Alicante to collaborate with a group of theoretical physicists interested in energy deposition along the track of proton beams.

I chose to participate in the mobility program FBK because I believe that my professional education can benefit from the collaboration with research groups that deal with complementary issues of those I focus on in FBK, even if alike and similar. I have already had several international experiences, similar to this one, during which I worked for short periods (three to six months) at the laboratories of other universities both as a scientific consultant (ETH, Zurich) and as Visiting Professor (University of Sheffield). These experiences were always promoted and financed by foreign universities with whom I worked. Taking advantage for the first timeof the FBK mobility program to work abroad, I spent a period of three months at the University of Alicante. All these international experiences allowed me to improve both my scientific and professional skills.

I have been in Alicante to collaborate with a group of researchers I had previously met during an international conference.

These colleagues are theoretical physicists who for years have been studying the energy deposition along the track of proton beams. I'm very interested in this subject because it has allowed me to use, on a new application domain, codes of Monte Carlo codes that I had developed in recent years. The new application domain relates to the treatment of tumors with proton beams. I am definitely attracted by international experiences like this which, in my opinion, enrich the skills and professionalism of a researcher far more than any other approach.

My advice, both for young researchers and for those who, like me, have a more consolidated experience, is not to overlook the importance of working closely with colleagues from foreign Universities with similar skills but also complementary to ours. The advantage you can get is much higher than that of distance collaborations. Furthermore this kind of actions favours the creation of connections and very strong relationships, even friendships as well as mutual professional respect, which can bring benefits both to the people involved and their respective institutions.

I worked on the nano-dose calculation in polymeric materials as a result of irradiation with proton beams along the track of sent particles. The difficulties encountered were the usual ones of this kind of research. The simulation allows you to make very accurate predictions, but obviously the validation of the results requires the continuous comparison with experimental data, not always available. I got very interesting results as proven by comparison with other simulations with experimental data we have found in the scientific literature.

The experience in Alicante has opened new investigation scenarios, allowing me to examine all issues relating to the correct calculation of the energy loss function and also to apply to a new application domain (the proton-therapy) the codes of Monte Carlo I had originally developed with the aim of solving problems related to the characterization of materials.

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