Cutting Edge Science Funded by the ERC

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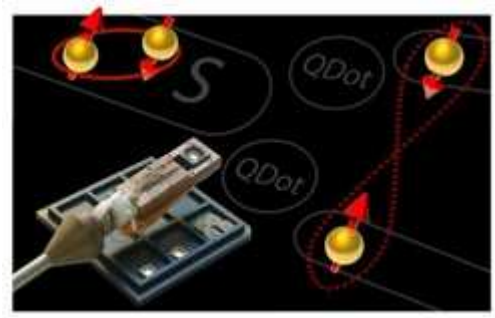

The European Research Council has announced the results of the prestigious "Starting Grant" competition. 5 young researchers working in Hungary obtained the award worth over one million Euros each. In the national ranking Hungary obtained a high position, overtaking all of the new EU member states. Among the 5 Hungarian grantees 2 belong to our university, both of them are members of the Department of Physics: Szabolcs CSONKA and Ferenc SIMON.

"Only by having your heart in it"

Ferenc Simon, one of the five recipients of the prestigious European Research Council 'Starting Grant 2010' is an associate professor at our Department of Physics. He has published 75 journal papers, 6 book chapters, over twenty conference proceedings and has had more than 500 citations during his 13-year scientific career.

The ERC grant is accompanied by about 1-1.5 MEuro funding for five years. He proposed a fundamental study in the field of 'spintronics'. This area, whose name mimics 'electronics', wants to exploit the fundamental property of the electrons, their spin, as an information carrier. There are high hopes that spintronics can revolutionize electronics, whose limits are being approached. Spin(ning) of an electron can be thought of naively as representing their rotation around an axis, however to our knowledge electrons have a zero radius thus the spin is a fundamental property which can be derived from the combination of quantum mechanics and relativity. He suggested to study the decay or decoherence time of an electron ensemble whose spin have been aligned alike. Measurements of this type are crucial for any future success of spintronics.

During a short visit in his labs it was immediately evident even for a layman that this kind of research needs very special equipment and is heavily dependent on grants. On questioning about the (hi)story of ERC application, he makes it clear that researchers must continuously apply for support – in spite of the fact that it can be hard at times when you don't win. Productivity is something you have to keep up even when there is no way to get the necessary instruments for your research. That's what he is always telling his students. In periods when you have no money, you have to keep going by designing new experiments or working on theoretical problems. For a shorter period in the past, when he had no grant money, that was exactly what he did and which partly led to the recent grant proposal. An even more important piece of his 'ars poetica' is that if you made the decision to be a researcher you must have your heart in it, 24/365.

To do experimental work in physics you need special and expensive equipment, which, of course, you could get complete – but they build it from ready-made parts. In this way they can save money and/or buy more parts; the costs of maintenance and servicing is more cost efficient and they can have multi-purpose instruments, as well. The Department of Physics has a long record of building instruments from ready-made parts with a huge amount of work and smartness. More than half of the support from ERC will go to instruments, and with a high added value he and

and smartness. More than half of the support from ERC will go to instruments, and with a high added value he and his team will build new machinery in the same fashion - a novel and unique spectrometer.

Finally, as he said, his personal presentation of the proposal in Brussels had a crucial role in his success, which corroborates the otherwise well-known fact that researchers must learn how to present their work efficiently.
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