

BASIC INFORMATION ON SUB-PROJECT

NAME OF PROGRAMME/FUND	Scholarship Fund - Sciex NMS ^{ch}
RESEARCH FIELD AND OTHER RESEARCH FIELDS INVOLVED (if applicable)	Physics
TITLE OF THE SUB-PROJECT	Piezoelectricity of nanotwinned ferroelectrics (NANODO1)
REGION OF THE CZECH REPUBLIC (according to the location of the home institution)	Prague
GRANT AMOUNT SPENT	32 987,7 CHF
INTERMEDIATE BODY	Swissuniversities
HOME INSTITUTION	Institute of Physics Academy of Sciences of the Czech Rep. Department of Dielectrics
HOST INSTITUTION	EPFL Materials
NAME OF THE FELLOW	Petr Ondřejkovič

ABSTRACT OF THE SUB-PROJECT	<p>The aim of this project is to investigate effective piezoelectric properties of perovskite ferroelectrics with engineered domain structures using phase-field simulations. The pivotal problem which has attracted lots of interest is the origin of the recently reported enhancement of the piezoelectric properties of ferroelectric BaTiO₃ by decreasing domain sizes to nanometric scales. Both the Swiss and Czech research groups involved in this project have independently attempted to explain these experiments by different approaches and concluded that defect-domain walls interactions may be essential for explaining the phenomenon. We now wish to join our efforts and to pursue this research jointly. Incorporating of point defects in our models would also allow to address issues related to relaxor ferroelectrics, which is the main topic of my current PhD project.</p>
MAIN RESULTS	
DATE OF REALISATION OF THE FELLOWSHIP	1.9.2012 - 28.2.2013
MORE INFORMATION ON THE PROGRAMME	www.sciex.ch