THE CORRESPONDING MEMBER OF THE NAS OF UKRAINE ANATOLII MYKOLAYOVYCH POGORILYI (to the 70-th anniversary of his birthday)

On July 9, the known scientist in the physics of magnetic phenomena and radio spectroscopy of thin films, the Honored worker in science and engineering of Ukraine, the winner of the State Prize of the Ukrainian SSR in science and engineering, the Corresponding Member of the NAS of Ukraine Anatolii Mykolayovych Pogorilyi is seventy years of age.

A.M. Pogorilyi graduated from the Faculty of Radiophysics of the T.G. Shevchenko Kyiv State University in 1964. From 1965 to 1990, he passed a way from an engineer to a Deputy Director of the Institute of Metal Physics of the NAS of Ukraine. In 1995, he was one of the organizers of the Institute of Magnetism of the NAS of Ukraine and the Ministry of Education and Science of Ukraine. Till 2003, he was a Deputy Director in scientific affairs of this institute; now he is the Head of the Department of thin-film physics at the same institute.

The first scientific work of A.M. Pogorilyi, his diploma thesis, demonstrated his unordinary approach to the solution of scientific problems. With the use of a magnetooptical instrument, he managed to visualize the parametric excitation of spin waves in a ferromagnetic medium in the course of magnetic resonance at high powers of superhigh-frequency radiation. A.M. Pogorilyi was the first in the world who studied the phenomenon of coupled electron-nuclear vibrations in magnetic films at liquid-helium temperatures. He started the research of the nuclear resonance in films of heavy rare-earth magnets and studied the influence of the quadrupole interaction on the features of the spin echo in them. He was the first who measured the constant of the magnetic interaction in amorphous iron–terbium films using a direct method of spin-wave resonance and confirmed the existing theoretical models concerning the essential role of iron ions in those interactions.

A.M. Pogorilyi carried out researches of multilayer films and film superstructures composed of magnets of different kinds, which allowed him to reveal a specific influence of the interface on the formation of a perpendicular anisotropy in those structures. In the recent years, he pioneered in experimental and theoretical researches devoted to the phenomenon of giant magnetoresistance in layered and granular magnetic nanostructures and colossal magnetoresistance in thin

films of substituted manganites, with a number of works having been written on those subjects.

An important place in the scientific activity of A.M. Pogorilyi is occupied by the issues of practical applications of the results obtained in the course of fundamental researches. He developed new magnetic film materials for devices intended for treating and storing radio signals, which were implemented in systems of special radio electronics. In 1985, the scientific researches and practical elaboration of new thin-film magnetic materials carried out under the direction of A.M. Pogorilyi were distinguished by the State Prize of the Ukrainian SSR in science and engineering. A.M. Pogorilyi proposed a new technology of a heat-resistant magnetic carrier for emergency recorders with a record value of temperature, at which information can be stored (700 °C). This technology was implemented at the Basic Research and Development Institute of Aviation Industry *Elektronmash*. A.M. Pogorilyi participated in the development of new technologies for the creation of multilayer and modulated film structures of transition and precious metals for systems with an ultrahigh density of data record and for the manufacture of granular magnetic films with unique magnetic and megnetoresistive properties for the supersensitive sensors of magnetic fields.

Lately, A.M. Pogorilyi has paid a large attention to the study and the implementation of nanomaterials in spintronics. On his initiative, a laboratory of spintronic materials was created at the Department of thin-film physics of the Institute of Magnetism, and a new course of spintronics has been lectured at the Faculty of Physics of the T. Shevchenko National University of Kyiv since 2007. During the period from 2007 to 2013, A.M. Pogorilyi together with his collaborators from the Department of thin-film physics and the scientists from other institutes of the NAS of Ukraine and the universities of the USA and the UK carried out a number of scientific works dealing with the creation of novel magnetic materials that can find applications in both spintronics and the technology of ultrahigh frequencies. In particular, we would like to mention his works devoted to the creation of multilayer film magnetic nanostructures on the basis of rare-earth and transition elements with enhanced magnetization and high degree of electron spin polarization. A series of works were also carried out by A.M. Pogorilyi concerning the development and the study of media with negative refractive index in the millimeter wave range; they obtained the substantial international resonance. To a great extent, the high level of scientific achievements by A.M. Pogorilyi is resulted from his permanent attention to the creation of a new equipment for both the fabrication of novel thin-film materials and their study.

The scientific activity of A.M. Pogorilyi in the domain of film physics is well-known in the international scientific community. He permanently participates in international conferences on the problems of magnetism and film physics. He was abroad many times either to make reports at the conferences or to carry out mutual researches. He cooperates with the scientists from the USA, Germany, France, the UK, and Russia. An illustrative evidence of this successful cooperation are the joint scientific projects INTAS, CRDF, and STCU, which were and are executed under his supervision, as well as numerous publications in recognized international scientific editions. Anatolii Mykolayovych is a co-author of more than 180 scientific publications; he has 30 author's certificates and patents for inventions concerning the application of new developed materials in radio electronics and instrument making.

A lot of attention is paid by A.M. Pogorilyi to the training of the scientific staff. He prepared 20 PhD's and 5 Doctors of science, being one of the organizers of the Branch of target-oriented training of the Kyiv National University at the NAS of Ukraine. For 15 years, he has lectured special courses on magnetism at the Faculties of Physics and Radiophysics of the T. Shevchenko National University of Kyiv. In 2006–2008, together with his colleagues from the same university, he published textbooks on general physics and materials technology.

A.M. Pogorilyi is a member of the Ukrainian and American physical societies, a member of the Editorial board of the *Ukrainian Journal of Physics*, and a member of the specialized councils on Doctor's and PhD's theses at the Institute of Magnetism and the Institute of Metal Physics. In 1998, he was elected President of Ukrainian Committee of International Union of Radio Science (URSI).

Anatolii Mykolayovych participated in the liquidation of consequences of the accident at the Chernobyl NPP. He fulfilled the duties of the Head of the subdivision of the AS of Ukraine on the elimination of consequences of the Chernobyl disaster and was awarded

by the Gratitude of the Governmental commission of the USSR and the medal *20 years since the Chernobyl accident*.

In 1998, A.M. Pogorilyi was awarded the honorary title "The Honored worker of Science and Engineering of Ukraine". In 2000, he was elected Corresponding Member of the NAS of Ukraine in the speciality "Physics of Magnetic Phenomena". In 2009, Anatolii Mykolayovych together with V.F. Los' and Ya.B. Bazalii was awarded the I. Pulyui Prize of the NAS of Ukraine for works dealing with researches of multilayered films with a nonideal interface. For today, A.M.Pogorilyi continues to work fruitfully, being a supervisor and a participant in a number of fundamental and applied projects with the Ukrainian and international sponsorship.

The success of Anatolii Mykolayovych and his colleagues and disciples is related, to a great extent, to the remarkable personal qualities of the scientist: his tactfulness, goodwill, and readiness to share his knowledge and experience. The friends, colleagues, and disciples sincerely congratulate Anatolii Mykolayovych with the jubilee and wish him sound health, creative enthusiasm, inspiration, and new striking results.

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