

INSTRUMENT	DOMAIN AND OBJECT OF RESEARCH	REFERENCES	RESPONSIBLE
<b>DIFFRACTION</b>			
<b>HRFD</b>	Determination of structural parameters of crystalline materials (lattice parameters, atomic coordinates and thermal factors) with high precision	<p>A.M. Balagurov, I.A. Bobrikov, G.D. Bokuchava, V.V. Zhuravlev, V.G. Simkin “Correlation Fourier Diffractometry: 20 Years of Experience at the IBR-2 Reactor” <i>Physics of Particles and Nuclei</i>, 46 (2015) 249–276. <a href="https://doi.org/10.1134/S1063779615030041">https://doi.org/10.1134/S1063779615030041</a></p> <p>A.M. Balagurov “High resolution Fourier diffraction at the IBR-2 reactor” <i>Neutron News</i> 16 (2005) 8–12. <a href="https://doi.org/10.1080/10446830500454346">https://doi.org/10.1080/10446830500454346</a></p>	<b>Dr. Ivan A. Bobrikov</b> <a href="mailto:bobrikov@nf.jinr.ru">bobrikov@nf.jinr.ru</a>
<b>FSD</b>	Determination of residual stresses in bulk materials and products	<p>G.D. Bokuchava, V.L. Aksenov, A.M. Balagurov, V.V. Zhuravlev, E.S. Kuzmin, A.P. Bulkin, V.A. Kudryashev, V.A. Trounov, “Neutron Fourier diffractometer FSD for internal stress analysis: first results”, <i>Applied Physics A: Materials Science &amp; Processing</i>, v.74 [Suppl1] (2002) pp s86-s88. <a href="http://doi.org/10.1007/s003390201750">http://doi.org/10.1007/s003390201750</a></p> <p>G.D. Bokuchava, A.M. Balagurov, V.V. Sumin, I.V. Papushkin, “Neutron Fourier diffractometer FSD for residual stress studies in materials and industrial components”, <i>Journal of Surface Investigation. X-ray, Synchrotron and Neutron Techniques</i>, 2010, Vol. 4, Issue 6, pp. 879-890. <a href="http://doi.org/10.1134/S1027451010060029">http://doi.org/10.1134/S1027451010060029</a></p> <p>G.D. Bokuchava, I.V. Papushkin, A.V. Tamonov, A.A. Kruglov, “Residual stress measurements by neutron diffraction at the IBR-2 pulsed reactor”, <i>Romanian Journal of Physics</i>, 2016, Vol. 61, No. 3-4, pp. 491-505. <a href="http://www.nipne.ro/rip/2016_61_3-4/0491_0505.pdf">http://www.nipne.ro/rip/2016_61_3-4/0491_0505.pdf</a></p>	<b>Mr. Igor V. Papushkin</b> <a href="mailto:piv@nf.jinr.ru">piv@nf.jinr.ru</a>
<b>RTD</b>	Determination of structural parameters of crystalline materials and nanosystems (lipid membranes, etc), real-time studies of chemical and physical processes	<p>(<b>EM</b>) A.M. Balagurov, A.I. Beskrovnyy, V.V. Zhuravlev, G.M. Mironova, I.A. Bobrikov, D. Neov, S.G. Sheverev, “Neutron Diffractometer for Real-Time Studies of Transient Processes at the IBR-2 Pulsed Reactor”, <i>Journal of Surface Investigation “X-ray, Synchrotron and Neutron Techniques”</i>, ISSN 1027-4510, 10 (2016), No. 3, pp. 467–479. <a href="https://doi.org/10.1134/S1027451016030046">https://doi.org/10.1134/S1027451016030046</a></p> <p>(<b>RUS</b>) Балагуров А.М., А.И. Бескровный, В.В. Журавлев, Г.М. Миронова, И.А. Бобриков, Д. Неов, С.Г. Шеверёв, Дифрактометр для исследований переходных процессов в реальном времени на импульсном источнике нейтронов ИБР-2 « Поверхность. Рентгеновские, синхротронные и нейтронные исследования », ИСЧН: 0207-3528, 5 (2016) стр. 3–16. DOI: 10.7868/S0207352816050048</p>	<b>Dr. Dimitr Neov</b> <a href="mailto:dneov@abv.bg">dneov@abv.bg</a>
<b>DN-12</b>	Determination of structural parameters of crystalline materials as function of external pressures	<p>V.L. Aksenov, A.M. Balagurov, V.P. Glazkov, D.P. Kozlenko, I.V. Naumov, B.N. Savenko, D.V. Sheptyakov, V.A. Somenkov, A.P. Bulkin, V.A. Kudryashev, V.A. Trounov “DN-12 time-of-flight high-pressure neutron spectrometer for investigation of microsamples”, <i>Physica B: Condensed Matter</i>, 265, 258-262 (1999) DOI:10.1016/S0921-4526(98)01392-1</p>	<b>Dr. Sergey E. Kichanov</b> <a href="mailto:ekich@nf.jinr.ru">ekich@nf.jinr.ru</a>

<b>DN-6</b> (under construction)	Determination of structural parameters of crystalline materials as function of external pressures	S.E. Kichanov, D.P. Kozlenko, E.V. Lukin, B.N. Savenko "Neutron Diffraction at High Pressure at IBR-2 Reactor: Current State and Prospects", the book of abstract of 14th European Powder Diffraction Conference, Aarhus, 15-18 June 2014, p. 171.	<b>Mr. Evgenii V. Lukin</b> <a href="mailto:luklin@nf.jinr.ru">luklin@nf.jinr.ru</a>
<b>EPSILON</b>	In situ studies of macro- and microstresses in rocks	Walther, K., Frischbutter, A., Scheffzuek, C., Korobshenko, M., Levchanovski, F., Kirillov, A., Astachova, N. & Mureshkevich, S. (2005): EPSILON-MDS - a neutron time-of-flight diffractometer for strain measurements. Solid State Phenomena 105, 67-70. <b>DOI:</b> 10.4028/www.scientific.net/SSP.105.67. <a href="https://www.scientific.net/SSP.105.67">https://www.scientific.net/SSP.105.67</a>  Scheffzuek, Ch., Hempel, H., Frischbutter, A., Walther, K. & Schilling, F.R. (2012) A device for sample rotation under external load for the simultaneous strain and orientation dependent material properties by means of TOF neutron diffraction. J. of Phys.: Conf. Ser. 340, 012038. <b>DOI:</b> 10.1088/1742-6596/340/1/012038	<b>Dr. Christian Scheffzuek</b> <a href="mailto:christian.scheffzuek@kit.edu">christian.scheffzuek@kit.edu</a>
<b>SKAT</b>	Studies of texture of geological samples (rocks, minerals)	Ullemeyer, K., Spalthoff, P., Heinitz, J., Isakov, N.N., Nikitin, A.N. & Weber, K. (1998): The SKAT texture diffractometer at the pulsed reactor IBR-2 at Dubna: Experimental layout and first measurements. Nucl. Instr. & Meth. Phys. Res. A 412 (1), 80-88. <b>DOI:</b> 10.1016/S0168-9002(98)00340-4  Keppler, R., Ullemeyer, K., Behrmann, J.H. & Stipp, M. (2014) Potential of full pattern fit methods for the texture analysis of geological materials: implications from texture measurements at the recently upgraded neutron time-of-flight diffractometer SKAT. J. Appl. Cryst. 47, 1520-1534. <b>DOI:</b> 10.1107/S1600576714015830	<b>Dr. Christian Scheffzuek</b> <a href="mailto:christian.scheffzuek@kit.edu">christian.scheffzuek@kit.edu</a>

## SMALL-ANGLE SCATTERING

<b>YuMO</b>	Determination of structural characteristics (size and shape of particles, agglomerates, pores, fractals) of nanostructured materials and nanosystems, including polymers, lipid membranes, proteins, solvents, etc	Kuklin, A. I., Islamov, A. Kh. and Gordeliy, V. I. (2005) 'Scientific Reviews: Two-Detector System for Small-Angle Neutron Scattering Instrument', Neutron News, 16:3, 16 — 18. <a href="http://dx.doi.org/10.1080/10448630500454361">http://dx.doi.org/10.1080/10448630500454361</a>  A.I.Kuklin, D.V.Soloviov, A.V.Rogachev, P.K.Utrobina, Yu.S. Kovalev, M.Balasoju, O.I.Ivankov, A.P. Sirotnin, T.N.Murugova, T.B.Petukhova, Yu.E.Gorshkova, R.V.Erhan, S.A.Kutuzov, A.G.Soloviev, V.I. Gordeliy "New opportunities provided by modernized small-angle neutron scattering two-detector system instrument (YuMO)" Journal of Physics: Conference Series 291 (2011) 012013 <b>DOI:</b> 10.1088/1742-6596/291/1/012013 <a href="http://iopscience.iop.org/1742-6596/291/1/012013">http://iopscience.iop.org/1742-6596/291/1/012013</a>  A.G. Soloviev, T.M. Solovjeva, O.I. Ivankov, D.V. Soloviov, A.V. Rogachev and A.I. Kuklin "SAS program for two-detector system: seamless curve from both detectors" IOP Conf. Series: Journal of Physics: Conf. Series 848	<b>Dr. Alexander I. Kuklin</b> <a href="mailto:kuklin@nf.jinr.ru">kuklin@nf.jinr.ru</a>  co- responsible: <b>Dr. Dmytro V. Soloviov</b> <a href="mailto:DSolovjov@nf.jinr.ru">DSolovjov@nf.jinr.ru</a>  co- responsible: <b>Dr. Oleksandr I. Ivankov</b> <a href="mailto:ivankov@jinr.ru">ivankov@jinr.ru</a>
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## REFLECTOMETRY

<b>GRAINS</b>	Studies of surface and interface phenomena in soft and liquid nanosystems (magnetic fluids, polymers, lipid membranes)	<p>M.V. Avdeev, V.I. Bodnarchuk, V.I. Petrenko, I.V. Gapon, O.V. Tomchuk, A.V. Nagorny, V.A. Ulyanov, L.A. Bulavin, V.L. Aksenov, "Neutron time-of-flight reflectometer GRAINS with horizontal sample plane at the IBR-2 reactor: Possibilities and prospects", Crystallography Reports, 2017, Vol. 62, Issue 6, pp. 1002-1008. DOI: 10.1134/S1063774517060025</p> <p>M.V. Avdeev, A.A. Rulev, V.I. Bodnarchuk, E.E. Ushakova, V.I. Petrenko, I.V. Gapon, O.V. Tomchuk, V.A. Matveev, N.K. Pleshanov, E.Yu. Kataev, L.V. Yashina, D.M. Itkis, "Monitoring of lithium plating by neutron reflectometry", Applied Surface Science, 2017, Vol. 424, pp. 378-382. DOI: 10.1016/j.apsusc.2017.01.290</p> <p>I.V. Gapon, V.I. Petrenko, L.A. Bulavin, M. Balasoiu, M. Kubovcikova, V. Zavisova, M. Koneracka, P. Kopcansky, H. Chiriac, M.V. Avdeev, "Structure analysis of aqueous ferrofluids at interface with silicon: neutron reflectometry data", Journal of Physics: Conference Series, 2017, Vol. 848, Issue 1, pp. 012015. DOI: 10.1088/1742-6596/848/1/012015</p>	<p><b>Dr. Igor V. Gapon</b> <a href="mailto:gapon@jinr.ru">gapon@jinr.ru</a></p>
<b>REMUR</b>	Determination of magnetization profile of layered magnetic nanostructures, studies of proximity effects in nanosystems	<p>V.L. Aksenov, K.N. Jernenkov, S.V. Kozhevnikov, H. Lauter, V. Lauter-Pasyuk, Yu.V. Nikitenko, A.V. Petrenko, The polarized neutron spectrometer REMUR at the pulsed reactor IBR-2, JINR Communications D13-2004-47 (2004). <a href="http://www1.jinr.ru/Preprints/2004/047(D13-2004-47)e.pdf">http://www1.jinr.ru/Preprints/2004/047(D13-2004-47)e.pdf</a></p>	<p><b>Mr. Alexander V. Petrenko</b> <a href="mailto:petrenko@nf.jinr.ru">petrenko@nf.jinr.ru</a></p> <p>co- responsible: Mr. Vladimir D. Zhaketov <a href="mailto:zhaketov@nf.jinr.ru">zhaketov@nf.jinr.ru</a></p>
<b>REFLEX-P</b>	Determination of structural characteristics of thin films and layered nanostructures	<p>Korneev D.A., Bodnarchuk V.I., Yaradaikin S.P. The reflectometer of polarized neutrons REFLEX-II, Preprint JINR, P3-2002-189, Dubna, 2002 (in RUS) <a href="http://www.jinr.ru/publish/Preprints/2002/189(P3-2002-189).pdf">http://www.jinr.ru/publish/Preprints/2002/189(P3-2002-189).pdf</a></p>	<p><b>Dr. Anatolii V. Nagorny</b> <a href="mailto:avnagorny@jinr.ru">avnagorny@jinr.ru</a></p>

## INELASTIC SCATTERING

<b>DIN-2PI</b>	A study of lattice dynamics of crystalline, amorphous materials and liquids	<p>Kalinin, I. V.; Morozov, V. M.; Novikov, A. G.; Puchkov, A. V.; Savostin, V. V.; Sudarev, V. V.; Bulkin, A. P.; Kalinin, S. I.; Pusenkov, V. M.; Ul'yanov, V. A. 'Characteristics of the DIN-2PI spectrometer with a neutron concentrator' Technical Physics, 2014, Volume 59, Issue 2, 307. DOI: 10.1134/S1063784214020121</p> <p>Pieper, J.; Trapp, M.; Skomorokhov, A.; Natkaniec, I.; Peters, J.; Renger, G. 'Temperature-dependent vibrational and conformational dynamics of photosystem II membrane fragments from spinach investigated by elastic</p>	<p><b>Dr. Eugeny A. Goremychkin</b> <a href="mailto:goremychkin@jinr.ru">goremychkin@jinr.ru</a></p>
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and inelastic neutron scattering' *Biochimica et Biophysica Acta (BBA) - Bioenergetics*, 2012, Volume 1817, Issue 8, 1213.

**DOI:** 10.1016/j.bbabi.2012.03.020

Skomorokhov, A. N.; Trots, D. M.; Ovchinnikov, S. G; Fuess H. 'Lattice vibrations in an  $\alpha$ - and  $\beta$ -AgCuS superionic conductor: experimental time-of-flight inelastic neutron scattering studies.' *Journal of Physics: Condensed Matter*, 2007, Volume 19, Issue 18, 186228.

**DOI:**10.1088/0953-8984/19/18/186228

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**NERA**

A study of lattice dynamics and structural parameters of molecular crystals, crystals with molecular ions, especially exhibiting polymorphism

Natkaniec, I., Bragin, S. I.; Brankowski, J.; Mayer, J. 'Multicrystal inverted geometry spectrometer NERA-PR at the IBR-2 pulsed reactor' In Steigenberger, U.; Brome, T.; Rees, G. and Soper, A. (Ed), proceedings of the rICANS XII Meeting, Abingdon 1993, RAL Report No. 94-025. 1994, Volume 1, 89. <http://neutronresearch.com/parch/1993/01/199301010890.pdf>

Natkaniec, I; Chudoba, D.; Hetmańczyk, Ł.; Kazimirov, V. Yu.; Krawczyk, J.; Sashin, I. L.; Zalewski, S. 'Parameters of the NERA spectrometer for cold and thermal moderators of the IBR-2 pulsed reactor' *Journal of Physics: Conference Series*, 2014, Volume 554, 012002.

<http://iopscience.iop.org/article/10.1088/1742-6596/554/1/012002>

Łuczyńska, K.; Druźbicki, K.; Łyczko, K.; Dobrowolski, J. Cz. 'Structure–Spectra Correlations in Anilate Complexes with Picolines' *Crystal Growth & Design*, 2016, Volume 16, Issue 10, 6069. **DOI:** 10.1021/acs.cgd.6b01114

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