Application Form for MICROKELVIN Transnational Access Project

1. General Information

Project number:	CNRS 04	
Project Title:	Nonlinear NMR in Superfluid ^{3}He in Aerogel	
Lead scientist:[1]	**Title:**	Doctor
	First name:	Dmitriy
	Last name:	ZMEEV
	Birth date:	3rd December, 1979
	Research status/Position:	*Research Associate*
	New User:[2]	Yes
	Scientific Field:	Low temperature physics
	Home institution:	University of Manchester
	Home institution is MICROKELVIN partner:	**Yes** ☐ **No** ☒
	Business address:	Schuster Laboratory, University of Manchester
	Street:	Oxford Road
	Street No.:	
	PO Box:	
	City:	Manchester
	Zip/Postal Code:	M13 9PL
	Country:	UK
	Telephone:	+44-161-2754077
	Fax:	+44-161-2754056
	E-mail:	dmitriy.zmeev@manchester.ac.uk

Curriculum vitae (18 lines max):

Qualifications - academic and professional - and membership of bodies:

- *M.Sc. thesis: NMR in the B-like Superfluid Phase of ^{3}Hein Aerogel,* Moscow Institute of Physics and Technology, Moscow, June 2003
- *Ph.D. thesis: Investigations of Superfluid Phases of ^{3}He in Aerogel*, Kapitza Institute for Physical Problems, Russian Academy of Sciences, Moscow, January 2007

Previous employment and appointments held:

- *Research Associate*, Kapitza Institute for Physical Problems, Russian Academy of Sciences, Moscow, January 2007 – October 2008
- *Postgraduate Student*, Kapitza Institute for Physical Problems, Russian Academy of Sciences, Moscow, April 2003 – January 2007

Five most recent publications:

1. V.V. Dmitriev, D.A. Krasnikhin, N. Mulders, D.E. Zmeev
   J. of Low Temp. Phys. **150**, 493 (2008)
   Soliton-like Spin State in the A-like Phase of ^{3}He in Anisotropic Aerogel

2. J.M. Parpia, A.D. Fefferman, J.V. Porto, V.V. Dmitriev, L.V. Levitin and D.E. Zmeev
   J. of Low Temp. Phys. **150**, 482 (2008)
   Scaling Results for Superfluid ^{3}He in 98% Open Aerogel

3. V.V. Dmitriev, D.A. Krasnikhin, N. Mulders, V.V. Zavjalov, D.E. Zmeev

[1] The lead scientist indicated here is expected to participate in the campaign as a user of the infrastructure.
[2] Indicate 'Yes' only if the user has never visited the infrastructure before this specific project, otherwise write 'No'.

	JETP Lett. **86**, 681 (2007) *Longitudinal and Transverse NMR in Superfluid ^{3}He in Anisotropic Aerogel*		
	4. R. Blaauwgeers, M. Blazkova, M. Clovecko, V.B. Eltsov, R. de Graaf, J. Hosio,M. Krusius, D. Schmoranzer, W. Schoepe, L. Skrbek, P. Skyba, R.E. Solntsev and D.E. Zmeev J. of Low Temp. Phys. **146**, 537 (2007) *Quartz Tuning Fork: Thermometer, Pressure- and Viscometer for Helium Liquids*		
	5. V.V. Dmitriev, L.V. Levitin, N. Mulders, D.E. Zmeev JETP Lett. **84**, 461 (2006) *Longitudinal NMR and Spin States in the A-like Phase of ^{3}He in Aerogel*		
Other participating scientists:[3]	**Name:**	**Position:**	**New User:**[2]
	1-		
	2-		
	3-		

[3] Please list all participating user group members. Expand the table, if necessary.

2. Project Information

Name of host infrastructure:	Institut Néel, CNRS, Grenoble (MICROKELVIN-Grenoble)			
Access provider / Infrastructure coordinator:	**Name:** Dr. Henri Godfrin		**E-mail address:** henri.godfrin@grenoble.cnrs.fr	
Planned project dates:	**Start date:**	28/06/2010	**Completion date:**	14/08/2010

Project description (12 lines max):

Nonlinear NMR proved to be a powerful tool in investigations of superfluid ^{3}He.
Some nonlinear modes are associated with Bose-Einstein condensation of magnons: in the B-like phase of ^{3}He in aerogel it is analogous to the mode observed in bulk ^{3}He, but in the A-like phase such state has been only observed in ^{3}He in uniaxially anisotropic aerogel.

Scientific objectives of the project (12 lines max):

The objective of this project is to investigate the properties of the non-linear NMR modes in superfluid ^{3}He in aerogel under different conditions.

Technical description of work to be performed (20 lines max):

In this initial stage, a short stay (28.06.10-14.08.10) at the Grenoble Microkelvin facility is required.
The work program consists of a detailed analysis of the available experimental data and conducting new experiments. Dr. Zmeev has a vast experience in non-linear NMR in superfluid ^{3}He in aerogel obtained during his PhD studies and employment at Kapitza Institute in Moscow. The experiments will be performed together with the CNRS research team in the existing experimental environment.

3. Joint Proposals / Funding

Is this project in collaboration with other (concurrent) projects at the infrastructure? Yes ☐ No ☒
Specify:

Is this proposal submitted to any funding programmes? Yes ☐ No ☒
If yes, please specify: Only to MicroKelvin collaboration

The completed application form should be submitted to the MICROKELVIN Management Office