



# Iron-based Superconductors: advances towards applications

AND



## SuperFOX2020

Conference on Superconductivity and Functional Oxides

### JOINT SESSION

Wednesday February 12 <sup>th</sup>	
14:00	<b>Opening of SuperFOX – IBS2app joint session</b>
	<b>Applications of Superconductivity (IEEE CSC sponsored session) - Chair G. Celentano</b>
14:10	<b>Y. Ma</b> ( <i>keynote speaker</i> ) Status of high-field iron-based superconducting wires and tapes
14:50	<b>S. Calatroni</b> Study of HTS coatings for beam impedance mitigation in the FCC
15:10	<b>E. Silva</b> YBCO coated conductors and thin films for high frequency applications in dc magnetic fields
15:30	<b>L. Muzzi</b> Superconductors for the Italian Divertor Tokamak Test Facility project
15:50	<b>A. Morandi</b> Research status and direction of HTS Fault Current Limiters
16:10	<b>Coffee Break</b>
	<b>IBS Fundamental Studies - Chair S. Pagano</b>
16:40	<b>T. Gorni</b> Impact of non-local exchange on Iron Pnictides
17:00	<b>F. Caglieris</b> Elasto-transport: a probe for nematic fluctuations in iron-based superconductors
17:20	<b>R. Hussain</b> Magnetic ordering and spin dynamics in LaOFeSe : a La NQR study
17:40	<b>F. Bernardini</b> Evidence of the isoelectronic character of F doping in SmFeAsO <sub>1-x</sub> F <sub>x</sub>
18:00	<b>V. Vlasenko</b> Planar defects and vortex pinning in EuRbFeAs iron-based superconductor



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## MORNING SESSION 1

Thursday February 13 <sup>th</sup>	
8:30	<b>Opening of IBS2app</b>
<b>IBS Thin Films and Coated Conductors – Chairs V. Braccini, K. Iida</b>	
8:40	<b>M. Putti</b> The Project PRIN HIBiSCUS: High performance-low cost Iron BaSed Coated condUctorS for high field magnets
8:50	<b>B. Holzapfel (invited speaker)</b> Fe-based superconducting coated conductors – preparation, tuning of properties, and recent development
9:10	<b>A. Vannozzi</b> Epitaxial La <sub>2</sub> Zr <sub>2</sub> O <sub>7</sub> and Zr-doped CeO <sub>2</sub> films by chemical solution deposition as buffer layers for Fe(Se,Te) film growth
9:25	<b>G. Sylva</b> Fe(Se,Te) Coated conductors on simple RABiTS templates
9:40	<b>A. A. Thomas</b> Towards the study of uniaxial strain in epitaxial FeSe <sub>x</sub> Te <sub>1-x</sub> films
9:55	<b>S. Holleis</b> Investigation of granularity in FeSe <sub>1-x</sub> Te <sub>x</sub> thin films on various substrates
10:10	<b>Coffee Break</b>
<b>IBS Wires and Tapes – Chairs A. Ballarino, A. Malagoli</b>	
10:40	<b>T. Tamegai (keynote speaker)</b> Developments of (Ba,Na)Fe <sub>2</sub> As <sub>2</sub> and CaKFe <sub>4</sub> As <sub>4</sub> HIP Round Wires
11:10	<b>H. Ogino (invited speaker)</b> Characteristics and potential of application for 1144-type iron pnictide superconductors
11:30	<b>S. Imai</b> Cold-press formed superconducting joint between Ba <sub>0.6</sub> K <sub>0.4</sub> Fe <sub>2</sub> As <sub>2</sub> tapes
11:45	<b>V. Vlasenko</b> Superconducting properties of the BaFe <sub>2-x</sub> Ni <sub>x</sub> As <sub>2</sub> wire fabricated by hot gas extrusion method
12:00	<b>Y. Ma and A. Ballarino</b> Perspectives for IBS conductors in accelerator magnets
13:00	<b>Lunch</b>



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## AFTERNOON SESSION 2

Thursday February 13 <sup>th</sup>	
<b>Material properties – Chairs C. Ferdeghini, H. Ogino</b>	
14:30	<b>F. Kametani</b> ( <i>keynote speaker</i> ) Macroscopic and nanoscopic uniformity and its correlations to intergrain connectivity in K-doped Ba122 polycrystals
15:00	<b>A. Yamamoto</b> ( <i>invited speaker</i> ) Recent progress in the development of Ba122 polycrystalline bulk materials
15:20	<b>K. S. Pervakov</b> Synthesis of the bulk sodium-doped SrFe <sub>2</sub> As <sub>2</sub> and BaFe <sub>2</sub> As <sub>2</sub> by mechanical alloying for applications
15:35	<b>A. Masi</b> Role of annealing treatments on microstructure and superconducting properties of polycrystalline Fe(Se,Te)
15:50	<b>R. Sakagami</b> Appearance of SmFeAsO as a mother phase of iron-based superconductor during a solid state reaction in the 580° to 980°C temperature range
16:05	<b>G. Bioletti</b> A detailed investigation into the evolution of J <sub>c</sub> vs pressure in Ba122: observation of an optimal pressure and significant increases in J <sub>c</sub>
16:20	<b>Coffee Break</b>
<b>IBS Thin Films – Chairs B. Holzapfel, E. Silva</b>	
16:50	<b>K. Iida</b> ( <i>keynote speaker</i> ) Hydrogen doped NdFeAsO epitaxial thin films with high critical current
17:20	<b>L. Grunewald</b> Structural properties of Co-doped BaFe <sub>2</sub> As <sub>2</sub> thin films
17:35	<b>G. A. Ummarino</b> Optical properties of BaFe <sub>1.91</sub> Ni <sub>0.09</sub> As <sub>2</sub> film analyzed in the framework of multiband Eliashberg theory
17:50	<b>S. Pagano</b> Electric Transport Properties of Iron-Based Superconducting Nanowires
18:05	<b>S. K. Chaluvadi</b> Structural and Electronic properties of FeSe films grown by PLD
18:20	<b>C. Camerlingo</b> Magnon light scattering in iron based chalcogenide films
20:00	<b>Conference Dinner</b>



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## MORNING SESSION 3

Friday February 14 <sup>th</sup>	
Synthesis and properties of IBS single and polycrystals – Chairs L. Gozzelino, T. Tamegai	
8:30	<b>S. J. Singh</b> ( <i>invited speaker</i> ) Physical properties optimization of the stoichiometric CaKFe <sub>4</sub> As <sub>4</sub> superconductor
8:50	<b>R. Khasanov</b> ( <i>invited speaker</i> ) Multiband anisotropic superconductivity in CaKFe <sub>4</sub> As <sub>4</sub>
9:10	<b>D. Torsello</b> ( <i>invited speaker</i> ) London penetration depth anisotropy in CaK(Fe,Ni) <sub>4</sub> As <sub>4</sub>
9:30	<b>G. Ghigo</b> Effects of ion irradiation on 122 and 1144 families of iron-based superconductors, analyzed by a microwave technique
9:45	<b>S. Ishida</b> Unique critical current properties in 1144-type CaKFe <sub>4</sub> As <sub>4</sub> superconductor
10:00	<b>S. P. Kumar Naik</b> Novel CaKFe <sub>4</sub> As <sub>4</sub> superconductor synthesis: Effect of annealing and Sn addition on the structure, microstructure and superconducting properties
10:15	<b>Coffee Break</b>
Pinning and Vortex Matter in IBS – Chairs G. Ghigo, F. Kametani	
10:45	<b>M. Eisterer</b> ( <i>invited speaker</i> ) Neutron irradiation experiments on iron-based superconductors
11:05	<b>L. Civale</b> ( <i>invited speaker</i> ) Opportunities in studying vortex pinning and dynamics in large pulsed magnetic fields: how to reach beyond DC magnets
11:25	<b>G. Grimaldi</b> ( <i>invited speaker</i> ) Anisotropy in iron-chalcogenide Fe(Se,Te) thin films: still a puzzling problem
11:45	<b>N. Pompeo</b> Vortex parameters in FeSe <sub>0.5</sub> Te <sub>0.5</sub> thin films at microwaves
12:00	<b>S. Sanna</b> Vortex dynamics and irreversibility line in nearly optimally doped RFeAsO <sub>1-x</sub> F <sub>x</sub> superconductors (R = La, Ce, Sm)
12:15	<b>F. Laviano</b> Study of vortex pinning anisotropy in irradiated Ba122 superconductors by quantitative magneto-optical imaging
12:30	<b>A. Galluzzi</b> Flux creep and second magnetization peak effect in type-II superconductors: correlation and universality
12:45	<b>Closure</b>