



Akademgorodok, Siberia Science in next 50 years

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SIBERIAN BRANCH
OF THE RUSSIAN ACADEMY OF SCIENCES

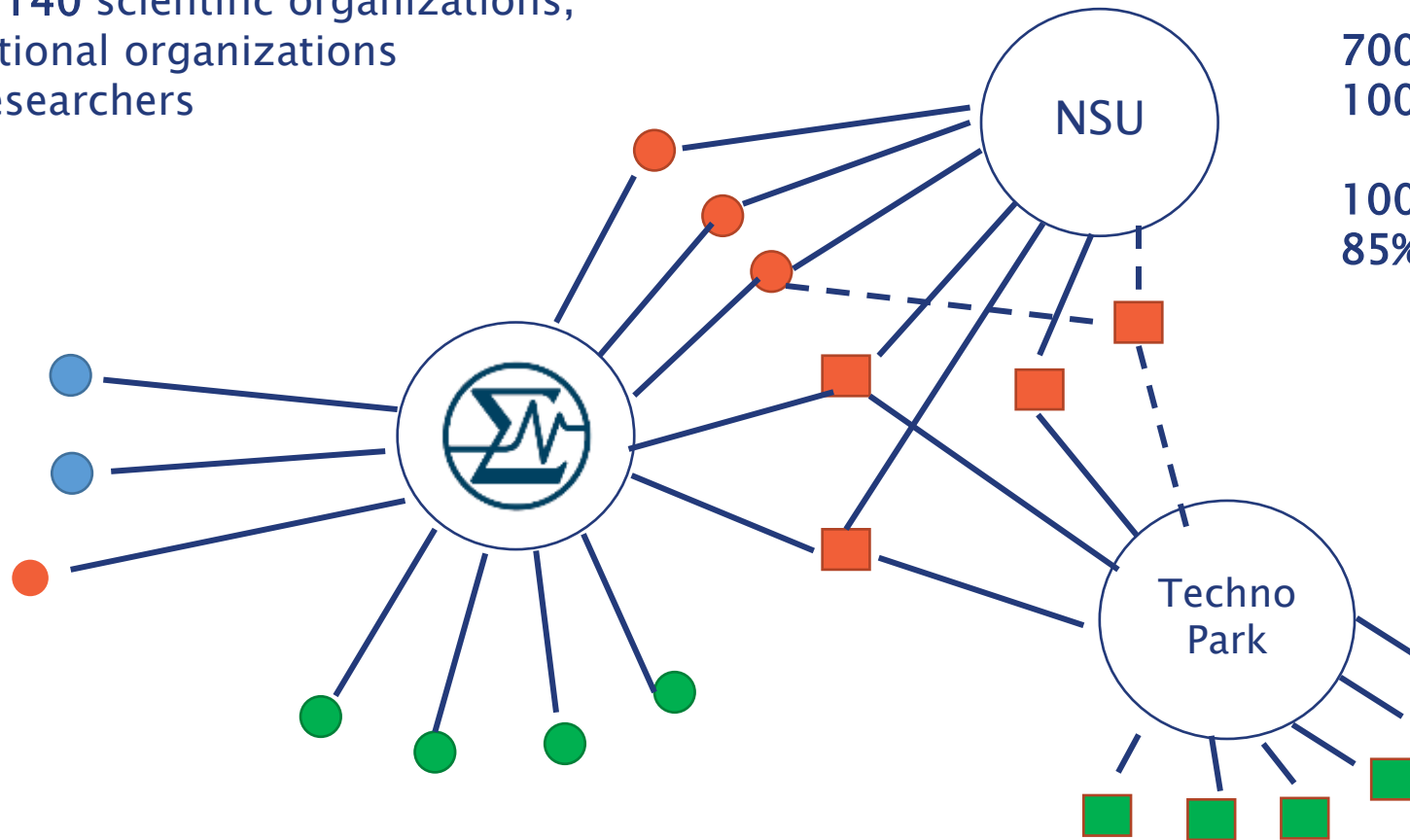
9 research centers in Siberian cities
6 science campuses
More than 140 scientific organizations,
170 educational organizations
11000+ researchers



Rating QS 2021 = 248 position
24 international scientific
collaborations

7000+ students, including
1000+ foreign ones

100+ specialties
85% teachers are from science



300+ resident
companies
>\$0,5 billions revenue
20 startups per year



Scientific potential of SB RAS (1)



Digital technologies and big data

- Supercomputer modeling: chemical, physical, social and economic processes
- Digital twins of materials



New materials

- Research of material properties
- Materials functionalization
- Prototype production of catalysts, production of pure chemicals



New industrial technologies

- Additive technologies, printing with refractory metals
- Processing of materials and surfaces
- Digital twins of industrial plants and power plants
- Instrument engineering



Energy sector

- Batteries and accumulators
- Technologies of fuel combustion intensification
- Efficiency of heat and power plants
- High-current electronics
- Hydrogen power engineering, hydrogen synthesis
- Gas and oil extraction intensification and deep processing



Scientific potential of SB RAS (2)

Medicine, personalized medicine



- Broadcast system in medicine
- Genetic and cellular technologies, synthetic biology
- Nuclear medicine

Ecology



- Green transformation, carbon footprint, carbon regulation
- Urban ecology
- Ecology atmosphere, ocean, lake Baikal, rivers and forests

Food, agriculture and forestry



- Genetic technologies
- Organic farming
- Nuclear / radiation technologies for agricultural processing products

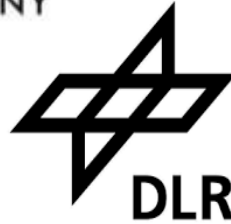
Big Challenges and Connectivity spaces



- Cross-border interaction in the North-east Asia
- Integrated programs of territories development
- Development of strategic raw mineral base
- Macroeconomics



Industrial partners





Geography

- Economy and ecology of Siberia
- Arctic and subarctic zones (Scientific Council)
- International scientific centre on cross-border cooperation in North-East Asia
- Scientific Council for Baikal Lake





Scientific hub Europe – Asia

<u>Asia</u>		
Country	Contacts	Topics and projects
China	1308	79
Japan	299	34
Korea	149	28
Taiwan	54	5
Mongolia	329	44

<u>Europe</u>		
Country	Contact Information	Topics and projects
Germany	771	69
France	374	34
Italy	207	12

<u>CIS countries</u>		
Belarus	174	535
Kazakhstan	174	35



Awards of France to Academgorodok researchers



Chairman of the Siberian Branch of the Russian Academy of Sciences, Academician Valentin Parmon In 2019, he was awarded the Order of Merit of France. The award was presented in Novosibirsk by the French Ambassador to Russia Sylvie Berman.



Academician Olga Lavrik awarded the Order of Academic Palms



Professor Michel Debrenn awarded the Legion of Honor



Cooperation with France 2011–present

Topics covered	Partners
<p>Photonics, spectroscopy, lasers, frequency standards, semiconductor and nanostructures, graphene, synchrotron radiation, superconductivity, elementary particle detectors, plasma technologies, mat. modeling, steels and alloys, heat and mass transfer, multi-phase, fluid dynamics, air dynamics, aircrafts, aeronautical, catalysts, substance synthesis, biomass, hydrogen</p>	<p>Université d'Angers; Université de Bordeaux; Laboratoire Pierre Aigrain, ENS Paris; Métrologie, Molécules et Tests Fondamentaux, Université de Bourgogne Franche-Comté, Systèmes de Référence Temps Espace – SYRTE, Université de Lorraine, ESRF, ITER, Université Savoie Mont Blanc, Université de Toulouse, Université Grenoble Alpes, DEN–SCCME, le CEA, l'Ecole Normale Supérieure de Lyon, AIRBUS, Aix-Marseille Université, CORIA, UPMC, ICMCB, Université de Rennes, Université de Strasbourg, IRCELYON, ...</p>



Cooperation with France. Current status

Partners	Subject area
University Bordeaux, CNRS Institute archaeology and ethnographies SB RAS	Joint research projects on the stone age (until 2026)
University Bordeaux, CNRS Sobolev Institute of mathematics SB RAS	Development of spatiotemporal networks in stochastic and dynamic environments: new mathematical models and optimization approaches (until 2023)
Ecole Normale Supérieure de Lyon, Université Claude Bernard de Lyon 1, International tomographic center SB RAS	Joint research on modern magnetic resonance and hyperpolarization nuclear spins (until 2024)
Université de Versailles, Institut Lavoisier Institut des Sciences Chimiques de Rennes A.V. Nikolaev Institute of Inorganic Chemistry SB RAS	Innovative materials and nanomaterials based on tailor functional blocks (until 2023)
CNRS, École polytechnique Kutateladze Institute of Thermophysics SB RAS	Silicon-containing materials of reduced dimension for solar cells (until 2024)
Evry Val University d'Essonne SABNP Lab Institute of Chemical Biology and Fundamental Medicine SB RAS	International Research Project, INSERM (until 2025)



Cooperation with France.

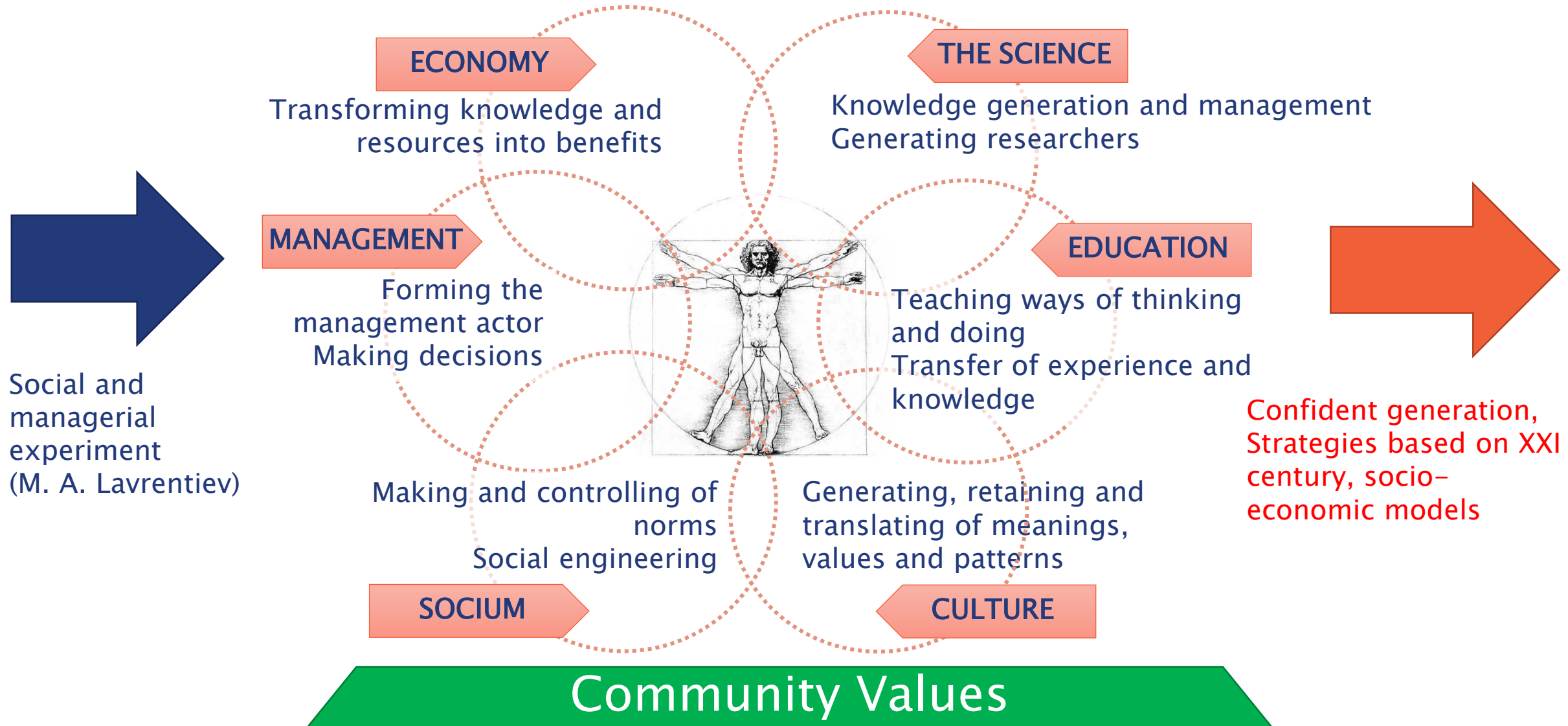
Experience of the Institute of Thermophysics SB RAS

Partner	Subject area
Aix-Marseille Université	Heat and mass transfer and fluid dynamics
-Centre National de la Recherche Scientifique (CNRS) -Institut National des Sciences Appliquées (INSA) -University of Rouen	Advanced flow diagnostics for aeronautical research Development of three-dimensional measurement methods based on optical tomography
Aix-Marseille Université – CNRS	Two-phase micro-sized systems with ultra-high heat dissipation
Aix-Marseille Université – CNRS	Development of scientific and technical base and experimental samples of highly efficient two-phase cooling systems with natural circulation for space and transport applications



Akademgorodok 2.0: The next 50 years

The ontological challenge: Keeping the person being thinking and responsible in the world of technologies





Welcome to the scientific Siberia!



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www.sbras.ru

www.akademgorodok2.ru