Registration Form - declaration of willingness for establishing interdisciplinary Dioscuri Centres of Scientific Excellence

This is a registration form for Host Institutions wanting to establish an interdisciplinary Dioscuri Centre of Scientific Excellence within Dioscuri 5 call.

Registration form for Polish research institution

1. Research institution data (name and address):

   Jagiellonian University, ul. Gołębia 24, 31-007 Kraków, Poland

   Center for Quantitative Political Science, ul. Reymonta 4, 31-114 Kraków

2. Type of research institution

   Higher education institutions

3. Head of the Institution:

   Prof. dr hab. Wojciech Macyk, the Vice-Rector for Research

4. Contact information of designated person(s) for applicants and the NCN: first and last name, position, e-mail address, phone number, correspondence address:

   Dariusz Stolicki, Director of the Center for Quantitative Political Science; dariusz.stolicki@uj.edu.pl, telephone: +48 795 545 703; correspondence address: ul. Reymonta 4, 31-114 Kraków

5. Research disciplines in which the institution ensures establishing of an interdisciplinary Dioscuri Centre (select two (and if necessary three) of the domains that should be combined; select two (or if necessary three) from the 25 listed auxiliary panels of disciplines). Provide two (and if necessary three) specific NCN subpanels according to the list.

☒ **DOMAIN: Humanities, Social Sciences and Art Sciences**

☐ Fundamental questions about human existence and the nature of reality

☐ Culture and cultural production

☐ The study of the human past

☐ Institutions, markets, space

☒ **Law and political science**
(subpanel: HS5_11: Political theory, political thought, political systems)

☐ Human nature and human society

☐ **DOMAIN: Life Sciences**

☐ Molecules of Life: Biological Mechanisms, Structures and Functions

☐ Integrative Biology: from Genes and Genomes to Systems

☐ Cellular, Developmental and Regenerative Biology

☐ Physiology in Health, Disease and Ageing

☐ Neuroscience and Disorders of the Nervous System

☐ Immunity, Infection and Immunotherapy

☐ Prevention, Diagnosis and Treatment of Human Diseases

☐ Environmental Biology, Ecology and Evolution

☐ Biotechnology and Biosystems Engineering

☒ **DOMAIN: Physical Sciences and Engineering**

☒ **Mathematics**
(subpanel: ST1_13: Probability and statistics)
(subpanel: ST1_17: Applied mathematics)

☐ Fundamental constituents of matter

☐ Condensed matter physics

☐ Chemistry

☐ Synthetic Chemistry and Materials Science

☐ Computer science and informatics

☐ Systems Engineering

☐ Production and processes engineering

☐ Earth sciences

☐ Materials Engineering

6. Description of important research achievements from the selected disciplines from the last 5 years including a list of the most important publications, data bases, series of workshops, patents, policy briefs, field work/ field site, exhibitions, other:

The Jagiellonian Center for Quantitative Political Science focuses on the quantitative analysis of political institutions and behavior, with a particular emphasis on electoral systems, seat allocation rules, party competition, and representation, combining formal modeling with empirical analysis of election data and political texts. It specializes in the application of computational methods such as machine learning, spatial modeling, and numerical experimentation. Its most prominent publications of the last 5 years include:

Stolicki D. 2026. Explaining Subnational Constitutional Choices: Separation of Powers in the American States. *Publius. The Journal of Federalism*, doi: 10.1093/publius/pjag003.

Boratyn D et al. 2026. Is Textual Similarity Invariant under Machine Translation? arXiv: 2605.00618 [cs.CL]

Boratyn D, Stolicki D. 2026. Allocation Proportionality of OWA–Based Committee Scoring Rules. AAMAS 2026. arXiv: 2602.10083 [cs.GT]

Stolicki D, Kosowska-Gąstoł B, Sobolewska-Myślik K. 2025. Within-Country Determinants of Political Party Structures. *Party Politics*, doi: 10.1177/13540688251400233.

Flis J, Kaminski M, Salamon J. 2025. The Mixed Local-Proportional Electoral System: Balancing Political Interests and Common Good. *Public Choice* 204: 221–36.

Flis J, Behnke J, Lorenc K, Salamon J. 2025. Cancellation of Overhang Seats: The Price of Unkept Promises. *Public Choice* 204: 237–259.

Boratyn D, Słomczyński W, Stolicki D, Szufa S. 2025. Spoiler Susceptibility in Party Elections, ECAI 2025, pp. 3775–3782.

Boratyn D, Słomczyński W, Stolicki D. 2025. Seat Allocation and Seat Bias Under the Jefferson–D'Hondt Method. *Operations Research and Decisions* 35: 1–27.

Stolicki D, Słomczyński W, Szufa S. 2024. Nonparametric Detection of Gerrymandering in Multiparty Elections, IJCAI 2024, pp. 2967–2975.

Laidler P, Jakubiak Ł, Sokołowski J, Stolicki D (eds.). 2024. *Constitutionalization of Politics in Comparative Perspective*, Routledge Research in Comparative Politics.

Boehmer N et al. 2024. *Guide to Numerical Experiments on Elections in Computational Social Choice*, IJCAI 2024, pp. 7962–7970.

Mate A et al. 2023. Machine Translation as an Underrated Ingredient? *Computational Communication Research* 5, doi: 10.5117/CCR2023.2.6.MATE.

Faliszewski P et al. 2023. Participatory Budgeting: Data, Tools, and Analysis, IJCAI 2023, pp. 2667–2674.

Flis J, Kaminski M. 2022. Party-Related Primacy Effects in Proportional Representation Systems: Evidence from Polish Local Elections. *Public Choice* 190: 345–363.

Faliszewski P, Sornat K, Szufa S. 2022. The Complexity of Subelection Isomorphism Problems. AAAI 2022, pp. 4991–98.

Boehmer N, Bredereck R, Faliszewski P, Niedermeier R, Szufa S. 2021. Putting a Compass on the Map of Elections, IJCAI 2021, pp. 59–65.

The Center also engages in the development of large-scale political data infrastructures, such as **Pabulib** (https://pabulib.org/), a database of 1837 participatory budgeting instances from 8 countries, and **Polish Political Data Infrastructure** (https://cbip.matinf.uj.edu.pl/PolPDI/), which includes a database of Polish election returns, political career paths, parliamentary bills, legislative votes, and legislative speeches, as well as roll call votes from 11 foreign and supranational parliaments.

7. List of no more than 4 important research projects from the selected disciplines awarded in national and international calls to the institution in the last 5 years (title, name of PI, source of funding, amount of funding):

Voter Shifts and Spatial Models of Party Competition, PI: Dariusz Stolicki, National Center for Science (OPUS call), 622 944 PLN.

Parliamentary Agenda-Setting in Times of Crisis: A Comparative Analysis of Legislative Initiatives in Modern Democracies, PI: Łukasz Jakubiak, National Center for Science (OPUS call), 599 837 PLN.

Electoral Reform for Poland. Development of Methods for the Forecasting of Political Consequences of an Introduction of a Mixed-Member Electoral System, PI: Jarosław Flis, National Center for Science (OPUS call), 416 880 PLN.

Electoral Formulae: Political Effects of Select Electoral Systems from the Quantitative Perspective, PI: Dariusz Stolicki, National Center for Science (OPUS call), 359 532 PLN.

8. Description of the available office space, working space, laboratory for the Dioscuri Centre:

The Dioscuri Centre will be provided with office space for a group of up to 12 researchers (FTE) (including post-docs and PhD students).

9. List of the available research equipment for the Dioscuri Centre:

The Dioscuri Centre will have access to:

- a computing cluster with two nodes 448 CPUs each and an Nvidia DGX H100 node with 8 Nvidia H100 Tensor Core GPUs
- a PostgreSQL database server with 24 TB of disk space,
- Microsoft Azure Cloud access,
- Azure Dev Tools for Teaching (equivalent to an MSDN subscription),
- software licenses: Wolfram Mathematica, SAS, MATLAB, Maple, Origin Pro, Stata, PyCharm,
- state-of-the-art LLM licenses: Claude Max, Gemini Ultra and Team, ChatGPT Pro and Team, Refine.ink,
- IT services: Overleaf Pro, Zotero, Google Colab Pro+.

10. List of the additional benefits (other than listed in invitation call) that the Institution declares to provide for the Dioscuri Centre (i.e.: additional funds, personal benefits, other):

Jagiellonian Center for Quantitative Political Science will provide the Dioscuri Centre with support services in areas such as data collection, web scraping, database design, implementation of software components, design and implementation of statistical / machine learning / natural language processing methods, and design and implementation of Monte Carlo simulations.

11. Other information about the internationalisation of the research institution e.g. international environment (international researchers community at the institution, internationalization of the management and administration), didactic in English, availability of Polish course for Foreigners etc.:

Jagiellonian Center for Quantitative Political Science has an extensive network of international collaborators with track record of joint grant proposals, including Oxford University, Paris-Dauphine, Pantheon-Sorbonne, University of Bologna, University of Vienna, University of California Irvine, Gesis-Leibniz Institute, University of Antwerp, University of Amsterdam, Ben Gurion University of the Negev, and Japan's National Institute of Science and Technology Policy. It is also a member of international consortia specializing in quantitative political science, including MEDem and Comparative Agendas Project.