IChF

HR EXCELLENCE IN RESEARCH

# BS4S

## Basic Sciences 4 Society needs: postdoctoral training

## Guide for Applicants

**Call deadline: December 31st, 2025**

Co-funded by the European Union

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# 1. Introduction

## 1.1. BS4S Project in a Nutshell

*"Basic Sciences 4 Society Needs: Postdoctoral Training" (BS4S) is a research training programme for postdoctoral fellows seeking to engage in research with broader impact and applications, addressing real societal, market, or technological needs and strengthening links between academia and business.*

The postdoctoral fellows, participants of the project, will conduct their research projects while attending a tailor-made (i.e., driven by individual Career Development Plans) training programme. **The fellowship lasts 36 months**, offering stability compared to typically short-term appointments that often disrupt personal arrangements and private life.

The project is carried out by **the Institute of Physical Chemistry, Polish Academy of Sciences (IChF)** with the support of the European Commission (Horizon Europe, Marie Sklodowska-Curie) and the Polish Ministry of Science and Higher Education. The programme will cover the **full costs of fellows' participation in the programme**, including:

- remuneration
- research and travels
- tiny equipment
- training

The programme of BS4S is composed of 2 pillars:

### Research

• Sucessful candidate to BS4S will carry out **individual research project prepared at application stage** and evaluated by an independent evaluation committee.

• The **prerequisite for each project is its international and interdisciplinary dimension**. Research projects demonstrating **broader scientific and societal impact, with potential applications** and, ideally supported by business involvement, will be given priority.

• In their research, **the fellows will be assisted by experienced mentors selected at an application stage**—an academic mentor from IChF and one from a foreign research institution, with the option to include a business mentor from Poland or abroad.

### Training

• The training programme will support BS4S fellows in **developing the skills needed to conduct research with wider impact and/or broader applications**.

• The **basis for training will be an individual Career Development Plan** (CDP) prepared by each fellow—together with their mentor and co-mentor. The CDP will define the fellow's training objectives and activities and guide them through the BS4S training programme, adapting it to best fit the fellow's needs.

• As part of enrolment, each fellow will spend at least one month conducting research and training at a partner's headquarters (**international secondment**). **Secondment to a business partner** is also recommended.

Mentors from **20 research units and 12 companies have declared their involvement in the project**. However, a BS4S fellow may choose other academic/business units as a partner organisation. Partner institutions offer

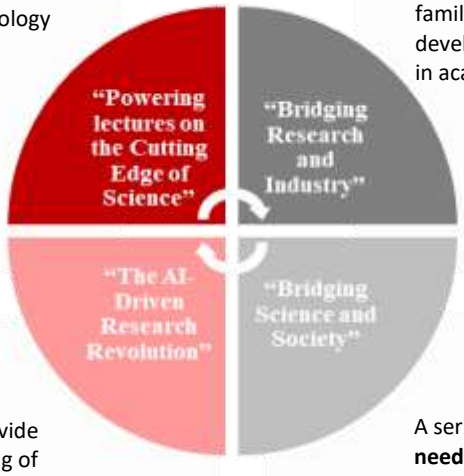
mentoring services to the BS4S fellows, but will also host them during secondments and train them. Alongside implementing their research projects, BS4S fellows will follow a **tailor-made training programme** focused on career development and research valorisation. Each fellow will design their training path based on a Career Development Plan (CDP), prepared in consultation with their mentor and co-mentor(s) after admission to the programme.

**The BS4S training programme** aims to equip fellows with the skills and knowledge to translate fundamental research into real-world applications, including products and services. Business partners will support this process by offering mentorship and internship opportunities, helping fellows gain first-hand experience in innovation, entrepreneurship, and industry collaboration. The BS4S fellows may also **supervise and mentor their team, i.e., 1 MSc and/or 1 PhD student** collaborating on their project to gain experience in team leading, research project management, co-supervision & advising to junior research staff. **This creates a unique offer for postdocs - preparing them for leadership roles in academia or industry through impactful research that addresses societal, market, or technological challenges**, while fostering strong collaboration between academia and business.

**The training programme will consist of four modules:**

A module fosters **forward-thinking research**, **promotes research of technological/social relevance,** and **captures the interdisciplinary connections** that propel advancements in science and technology

A module designed to **encourage a cross-sectoral approach** and conduct research that potentially leads to product launches, new services, or improved business processes. It also aims to familiarise the fellows with industry needs while developing skills that are unavailable in academic environments.




A module aiming to provide researchers with a robust understanding of AI concepts and applications, enhancing their **ability to integrate AI technologies into their research endeavours** and **optimise their time management.**

A series aiming to **sensitise scientists to society's needs** and **better communicate with citizens**. As a consequence to make the researchers **better address topics relevant from the public's perspective** in their research.

Although the **BS4S project is open to all research areas offered at IChF** (please check the project's webpage for details). However, we particularly encourage applications from the following three broad research areas, corresponding with **IChF's core areas of excellence**, around which the Institute's research efforts are particularly focused (i.e., IChF's Clusters of Excellence; CoE), i.e.,

- **CoE 1 – Advanced Biomaterials and Technologies for Health**
- **CoE 2 – Photonics and Light-Driven Processes**
- **CoE 3 – Catalysis and Materials for Sustainable Transformations**

## 1.2. Hosting institution

**The Institute of Physical Chemistry**, **Polish Academy of Sciences (IChF)** is the host institution for the BS4S project. The Institute, located in Warsaw (Poland), is an independent research centre ranked among the top 5% of scientific institutions in Poland (A+). As a holder of the **"HR Excellence in Research"** award, IChF ensures transparent recruitment processes, a supportive environment, and excellent working conditions.

IChF employs about **300 researchers**, 30% of whom come from abroad. International colleagues value Warsaw as a dynamic city offering a high quality of life at relatively moderate living costs.

IChF hosts **31 research groups** conducting interdisciplinary projects in chemistry inspired by biology, medicine, pharmacy, and physics. Researchers benefit from access to **modern equipment and extensive expertise**. A complete database of available research infrastructure is accessible on the Institute's website.

We are co-founders of two international centres:

- **ICTER – International Centre for Translational Eye Research** (with the University of California), developing breakthrough technologies for eye diagnostics and treatment, rooted in the ERA Chair CREATE project led by Prof. M. Wojtkowski.
- **Dioscuri Centre for Physics & Chemistry of Bacteria** (with the Max Planck Institute for Evolutionary Biology), combining experiments and modelling to explain bacterial growth and evolution.

Each year, IChF produces around **300 research papers** (including in *Nature*, *Science*, *JACS*, *Angewandte*) and **15 patents**. Half of our budget comes from competitive grants (over 100 active projects), including EU framework programmes. The Institute has hosted a prestigious **ERC project** and continues to implement two **ERA Chairs** (CREATE – completed, PERFECTION – ongoing), as well as Marie Sklodowska-Curie Actions: PD2PI (for postdocs), NaMeS (for PhD students), and currently BS4S. We also host the "Warsaw PhD School in Natural and Biomedical Sciences" (Warsaw-4-PhD), a joint initiative of 9 leading institutes.

IChF actively supports **innovation and commercialisation**. We have created **four spin-off companies**: Scope Fluidics (microfluidic devices), Curiosity Diagnostics (digital PCR), Fluence (femtosecond lasers), and BacterOMIC (antibiotic susceptibility testing). Our flagship success is Scope Fluidics, which commercialised PCR|ONE and sold it to Bio-Rad Laboratories for $170M. We also co-finance niche ventures by our researchers, such as SERSitive, Siliquan, and Cell-IN, and provide consultancy, measurement services, and patents through the initiative **"IChF for the Companies"**.

IChF is also the initiator of the **Dream Chemistry Award**, organised with the Czech Academy of Sciences, which honours young researchers with bold, visionary scientific ideas.

IChF is committed to providing **researcher-friendly working conditions** and **fostering professional growth**. This approach is reflected in our mission:

**"We Create Knowledge to Change the World."**

# 2. Application Process

## 2.1. Who can Apply?

**Requirements for Candidates**

We invite researchers from all over the world who meet the following criteria:

🎓 **PhD Degree** – in chemistry, physics, materials science, biotechnology, or related fields. Candidates must hold a doctoral degree or provide an official document confirming the defence of their doctoral thesis.

🌍 **Mobility Rule** – candidates must not have resided or carried out their main activity (work, studies, etc.) in Poland for over 12 months during the 3 years immediately before the call deadline. Remote work for a legal entity based in Poland is considered residence in Poland.

⚠️ **CAUTION:** *Researchers are not eligible if they have already been permanently employed by IChF. For refugees under the 1951 Refugee Convention and the 1967 Protocol, the refugee procedure (i.e., before refugee status is conferred) will not be counted as a 'period' of residence/activity in Poland.*

**Requirements for Research Projects**

Interested researchers should propose a project meeting the following criteria:

🔬 **Interdisciplinary Character** – positioned at the interface of chemistry, physics, biology and/or medicine.

💡 **Impact and Applications** – demonstrate broader scientific impact, show potential for practical applications, and/or address societal, market, or technological needs.

🤝 **Mentorship** – have the support of an IChF senior researcher (Mentor).

🌐 **International Collaboration** – involve the support of a senior researcher (ERC/EIC/other high-impact grantee) from an international partner organisation.

**Scientists at Risk (SAR)**

In BS4S, we want to ensure at-risk scientists feel welcome and supported. To make participation easier, interviews will be held online and foreign qualifications will be recognised. We offer you one-to-one contact to discuss any individual concerns. The BS4S website has a dedicated section with practical information prepared especially for at-risk scholars.

If you are in such a situation, your main contact person is the **Project Manager**, available at atadrzak@ichf.edu.pl.

## 2.2. Admission proceedings

To apply for the position under BS4S, you will need to prepare the following documents:

- ☑ **Proposal Abstract**
- ☑ **Full Project Proposal**
- ☑ **Curriculum Vitae** (CV)
- ☑ **Copy of your PhD Diploma** or an official document confirming the defence of your doctoral thesis
- ☑ **Supporting Letter from an IChF mentor** (using the provided template)
- ☑ **Supporting Letter from a co-mentor**, an ERC/EIC/other high-impact grantee from an international scientific partner organisation (using the provided template)
- ☑ **Supporting Letter from a business partner or business co-mentor** (optional, no template provided)

The submitted applications will be reviewed by an **international evaluation committee** composed of independent researchers and, where appropriate, business representatives. The process will assess both the candidate and the proposed research project and will be carried out in three stages:

- **Evaluation against eligibility criteria**
  (0 – 4 / min. threshold 4)
- **Evaluation against document evaluation criteria**
  (0 – 100 / min. threshold 60)

Desk-based assessment of the candidate's documents

➢ **Evaluation against interview evaluation criteria** ----------> Interview
(0 – 100 / min. threshold 70)

The prerequisite for being transferred to the subsequent evaluation stage is to surpass a defined threshold of points at each evaluation stage (check the minimum threshold above for reference).

### 2.3. How to Start?

We advise you to start planning your actions according to the following schedule:

**Visit BS4S webpage, choose a research group from IChF** conducting research in the field that may interest you. Subsequently, **select a mentor from this group** who may support your project.

**Enter IChF Equipment Database**. Make sure that we dispose of the infrastructure which is essential for your project. Under your research project's budget you may only purchase tiny research apparatus. If IChF does not have a specific infrastructure you need, try to select partner who may supplement our equipment.

**Outline your research project**. Next, **contact your chosen IChF mentor**, introduce yourself to them, your research project and ask for a supporting letter. A template of this letter you may find at BS4S webpage. You may also seek advice from them who may be best partner for this project.

**Contact a co-mentor from a list of IChF partner organisations or propose your own**. Addtionally, you may invite a partner from the business sector to be involved in your project. **Ask the selected co-mentor needs to sign a supporting letter.** A template of this letter you may find at BS4S webpage.

Once you have the supporting letter from your IChF mentor and scientific partner organisation, you may start preparing your proposal for BS4S to be consistent with the plan below.

### 2.4. Submission of Applications

To apply to BS4S, candidates should visit the BS4S webpage and complete the **online application module**. Through this module, please submit the following required documents:

- ☑ **Personal details**: name, surname, contact information (e-mail, phone number), and current or last workplace.
- ☑ **Abstract** – up to 1,500 characters.

☑ **Research proposal** – an original interdisciplinary project to be carried out during your fellowship at IChF. Please use the official *Research Proposal Template*. The following sections (and all subsections specified in the proposal template) must be included:

- ✓ Project Description
- ✓ Project's Expected Impacts
- ✓ Resources
- ✓ References
- ✓ Ethics

☑ **Curriculum Vitae (CV)** – including:

- ✓ Contact details (e-mail, phone number)
- ✓ Career course in academia and beyond, with emphasis on research/application projects, your role in them, and international experience (with countries of residence)
- ✓ Key research outputs: major publications, patents, industrial/utility designs (applications or granted rights)

☑ **Letters of support** – at least:

- ✓ One mentor from IChF (template provided)
- ✓ One co-mentor from another research organisation (template provided)
- ✓ *Optional*: a supporting letter from a business partner/co-mentor (no template provided). This is not mandatory but considered an added value.

☑ **PhD diploma** – a scan of your doctoral diploma or an official document confirming the defence of your thesis. A document proving a scheduled defence date before the call deadline is also acceptable.

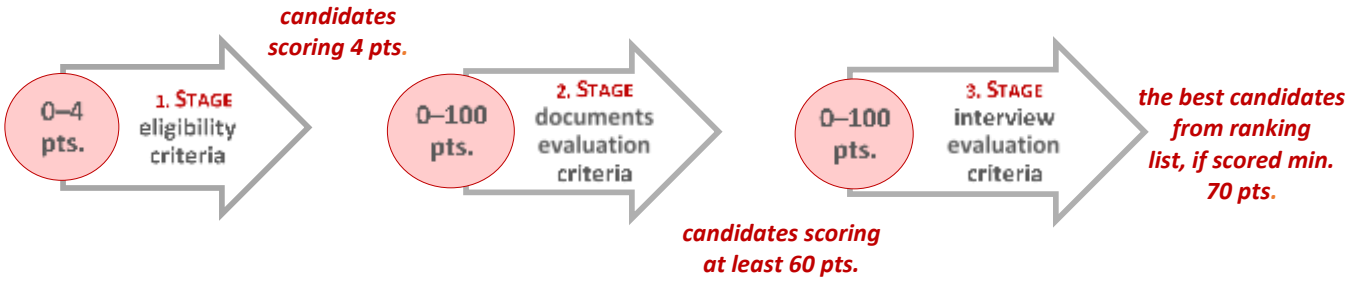
List of IChF Partner organisations and suggested co-mentors:

| Partner Organisation from academia | Recommended co-mentor | Country |
|---|---|---|
| **Heinrich-Heine-Universität Düsseldorf**<br>Institut für Theoretische Physik II - Soft Matter | **Hartmut Löwen**<br>Chair of the Institut | Germany |
| **Carl von Ossietzky Universität Oldenburg**<br>Institute of Chemistry | **Dmitry Momotenko**<br>Electrochemical Nanotechnology Group | Germany |
| **Leiden University**<br>Leiden Institute of Chemistry | **Lars Jeuken**<br>Bioenergetics Group Leader | the Netherlands |
| **University of Turku**<br>Department of Mechanical and Materials Engineering | **Pekka Peljo**<br>Battery Materials and Technologies Group Leader | Finland |
| **Universität Regensburg**<br>Centre for Magnetic Resonance in Chemistry and Biomedicine | **Ruth Gschwind**<br>Head of the Centre | Germany |
| **University of Padova**<br>Department of Chemical Sciences | **Luka Đorđević**<br>Organic self-assembly and photocatalysis Group Leader | Italy |
| **Humboldt-Universität zu Berlin**<br>Department of Chemistry | **Janina Kneipp**<br>Professor of Physical Chemistry, Group Leader | Germany |
| **Politecnico di Milano**<br>Department of Chemistry, Materials, and Chemical Engineering | **Gianvito Vilé**<br>Catalysis & Next-Generation Reaction Technology Group Leader | Italy |
| **University of Gothenburg**<br>Department of Physics | **Giovanni Volpe**<br>Head of Soft Matter Laboratory | Sweden |
| **École Polytechnique Fédérale de Lausanne**<br>Institute of Bioengineering | **Francesco Stellacci**<br>Head of the Supramolecular Nano-Materials and Interfaces Laboratory | Switzerland |
| **Radboud University**<br>Institute for Molecules and Materials | **Wilhelm Huck**<br>Head of the Department of Physical Organic Chemistry | the Netherlands |

| | | |
|---|---|---|
| **University of Stuttgart**<br>Institute of Photovoltaik | **Michael Saliba**<br>Head of the Institute | Germany |
| **University of Ferrara**<br>Department of Environmental and Prevention Sciences | **Stefano Carli**<br>Professor | Italy |
| **University of Münster**<br>Organisch-Chemisches Institut | **Olga García Mancheño**<br>Professor, Organic Chemistry Group Leader | Germany |
| **University of Milan**<br>Dipartimento di Chimica | **Serena Arnaboldi**<br>Professor in Analytical Chemistry, Group Leader | Italy |
| **Friedrich-Schiller University of Jena**<br>Centre for Energy and Environmental Chemistry | **Martin Oschatz**<br>Chair for Chemistry of Materials for Energy Applications | Germany |
| **University of Amsterdam**<br>Van't Hoff Institute for Molecular Sciences | **Timothy Noël**<br>Flow Chemistry Group Leader | the Netherlands |
| **University of Alberta**<br>Department of Chemistry | **Ratmir Derda**<br>Professor, Group Leader | Canada |
| **Ruhr University Bochum**<br>Collaborative Research Centre / Transregio 247 | **Kristina Tschulik**<br>Chair of Electrochemistry & Nanoscale Materials – Analytical Chemistry II | Germany |
| **Chalmers University of Technology**<br>Department of Chemistry and Chemical Engineering | **Andreas Dahlin**<br>Professor of Applied Chemistry, Group Leader | Sweden |

## 3. Evaluation process

There are three steps of the evaluation process:




### 3.1. First Stage – Eligibility Check

After document submission, candidates' applications are evaluated against the eligibility criteria by the BS4S Project Support Office (PSO). The eligibility criteria are as follows:

| Criterion | Explanation | Score |
|---|---|---|
| (1) **Application Completeness** | A Candidate has submitted the required documents with all the necessary information. | **0 / 1** |
| (2) **Mobility** | The Candidate has not resided or carried out their main activity (work, studies, etc.) in Poland for more than 12 months in the 36 months immediately prior to the deadline of the Call | **0 / 1** |
| (3) **Doctoral Degree** | The Candidate possesses a PhD (in chemistry, physics, materials science, biotechnology, or related field) or a formal document confirming the defence of a doctoral thesis | **0 / 1** |
| (4) **Project Eligibility under the BS4S Project** | The proposed project aligns with the call requirements, i.e.,<br>✓ Duration: 36 months (fixed)<br>✓ Budget: max. 1,400 EUR/month, covering research, training, and travel costs. Minor research equipment may also be included. | **0 / 1** |

| | | |
|---|---|---|
| | ✓ Project start: October 2026 at the latest<br>✓ The academic mentor supporting the project must hold an ERC/EIC grant or another prestigious, high-impact grant (subject to Selection Committee evaluation) | |
| | | **TOTAL** **0–4** |

⚠ **CAUTION:** *At this stage, you may be asked to deliver some supplements within seven calendar days from the date of sending the request, so make sure that you regularly check your email inbox.*

Only applications from candidates who receive at least 4 points will be eligible for further assessment.

### 3.2. Second Stage – Documents Evaluation

At this stage, International External Experts evaluate the submitted applications. They are independent of IChF, researchers - experts in the specific field the proposal covers. They give scores independently. The substantive criteria are as follows:

| Evaluation Criterion | Score |
|---|---|
| **Interdisciplinary dimension:** the project combines elements of at least two research disciplines | **Y/N** |
| **Ethics:** the proposal complies with relevant standards and legal provisions on ethical issues | **Y/N** |
| *Only applications that meet these two criteria will proceed to further assessment.* | |
| (1) **Project Excellence**<br>– The project promises considerable scientific advance in the field chosen by the candidate (0–20)<br>– The project addresses practical issues that are relevant to society (0–15)<br>– The proposed methodology is well-suited to achieving the project's objectives and is scientifically sound (0–10) | **0–45** |
| (2) **Project Wider Potential**<br>– The project falls within the thematic scope of any Cluster of Horizon Europe1 (0–10)<br>– The project foresees joint research works with a business entity, technology validation by end users or technology transfer to the business sector (0–10)<br>– The project includes gender considerations within the research content (0–5) | **0–25** |
| (3) **Researcher's Experience**<br>– The quality of scientific publications and candidate's involvement (first, corresponding, other) (0–10)<br>– Participation in industrial or application projects (0–10)<br>– Obtained/pending patents, rights to utility models or industrial designs (0–5)<br>– International experience, e.g. secondments outside the country of origin (0–5) | **0–30** |
| **TOTAL** | **0–100** |

If the scores given to a single applicant by the two International External Experts differ by 20 points or more, an additional expert will be appointed to provide an independent assessment.

Candidates who obtain at least 60 points may be invited for further assessment.

### 3.3. Third Stage – an Interview

At this stage, documents are no longer evaluated. The candidates are invited to participate in Online interviews (using Zoom or similar communicators), subject to the assessment against interview evaluation criteria.

⚠ **CAUTION:** *The invitation for an interview will be sent by email, so make sure that you regularly check your e-mail box.*

The interview panel will include:

- ☑ **2 International External Experts** – same as in the document-based assessment
- ☑ **2 additional External Experts**
- ☑ **Selection Committee from IChF** – present in a supporting role, without scoring rights

[1] *Scores are granted for research aligned with the HE Pillar II: Health; Culture, creativity & inclusive society; Civil security; Digital, industry & space; Climate, energy & mobility; Food, bioeconomy, natural resources, agriculture & environment. This prioritises candidates advancing research that drives societal progress and technological innovation, while providing access to competitive funding after BS4S completion.*

☑ **Independent observer** – may attend to ensure fairness, without scoring rights

During the interview, candidates will be asked to give a short presentation about themselves and their project, and to respond to questions from the Experts. The interview will follow the scenario outlined in the scheme below:

(1) **Candidate's Presentation** (oral, 15 min.) covering:
- Candidate's profile (experience, specialised knowledge, significant collaborations) and career goals
- The research project overview
- Project's feasibility considering proposed methods, available resources and co-/mentor support
- Motivation towards carrying out the proposed project, supported by past achievements and innovation-driven

(2) **Questions from the Experts** (10 min.)

The experts will evaluate the candidates against the following **interview evaluation criteria**:

| Evaluation Criterion | Score |
|---|---|
| (1) **Project Viability**<br>– Robustness of the research plan, resources availability, and timeline adequacy (0–20)<br>– Candidate's research experience and specialised knowledge relevant to the project (0–20)<br>– Expected impact of the project results on society, policy-makers or industry (0–10) | **0–50** |
| (2) **Soft Skills**<br>– Communication skills: the ability to present the project & Candidate's career goals in a clear and coherent way (0–15)<br>– Collaborative abilities (e.g., past collaborations with various stakeholders) (0–15) | **0–30** |
| (3) **Motivation** for the project in relation to future career plans and rationale for selecting co-/mentor | **0–20** |
| **TOTAL** | **0–100** |

If the interview scores for a given candidate differ by 20 points or more, or if contradictions appear in the justifications provided by the experts, the IChF Selection Committee will arrange a discussion with them to facilitate adjustments of scores and justifications.

After the final stage, **the overall score will determine the candidate's position on the ranking list**. Only candidates who achieve at least 70 points may be offered a postdoctoral position (up to the limit of 720 person-months). In the case of a tie, the criteria "Project viability" and "Motivation" will be used to decide.

## 4. Appeal procedure

After each evaluation stage, all applicants will be informed of the results.

Unsuccessful candidates may appeal the outcome of any stage. Appeals must be submitted by e-mail to bs4s@ichf.edu.pl **within seven calendar days of receiving feedback**. The appeal should indicate which evaluation criteria were, in the candidate's view, misapplied and include a justification.

All appeals are forwarded to the IChF Director. An Appeal Committee, composed of at least three senior IChF researchers (not involved in the BS4S programme), will review the case and may consult members of the Selection Committee if necessary. The IChF Director will then issue a formal response.

**The decision of the Director is final**.

## 5. Fellowship conditions

### 5.1. Employment conditions

As a BS4S fellow, you will be employed by the Institute of Physical Chemistry, Polish Academy of Sciences, on **a full-time employment contract for 36 months**. Your fellowship also includes **a secondment to an international partner organisation**, lasting at least one month and not more than one third of the project's duration. **Business placements** are also possible as part of the fellowship.

In line with Polish labour law, BS4S fellows employed full-time are expected to work **40 hours per week** (5 days, approx. 8 hours per day). The working time includes participation in the training programme and business trips.

Like all IChF researchers, fellows are entitled to **36 days of annual holiday leave**, fully paid maternity leave (up to 20 weeks) and shared parental leave.

The remuneration package also covers obligatory **pension contributions**. BS4S fellows and their spouses and children will be included in the **public healthcare system** and **an additional private healthcare package**. They may also benefit from **the IChF social fund**.

### 5.2. Remuneration package

BS4S fellows will receive a **monthly gross salary of EUR 4,700** (average net amount: approx. EUR 2,500). Salaries are transferred to the fellow's bank account **in arrears**, per IChF internal regulations (currently by the 10th day of the following month).

In addition, fellows with family obligations are eligible for an **extra allowance of EUR 200 gross per month**.

### 5.3. Research costs

Each BS4S fellow will have access to a **monthly personal research budget of up to EUR 1,400**. This budget may be used to cover:

- ☑ **Research-related costs** (e.g. consumables, small-scale infrastructure)
- ☑ **Travel costs**
- ☑ **Training costs** that contribute to the fellow's career development (e.g., participation in conferences, workshops, seminars, specialised courses, lab visits) – provided they are in line with the individual Career Development Plan
- ☑ **Open Access fees** for publications (*mandatory*)

## 6. Important dates

| | |
|---|---|
| **BS4S Call Opening** | September 1, 2025 |
| **Deadline for Application Submission** | December 31, 2025 |
| **Documents Eligibility Check** | January, 2026 |
| **Applications Evaluation** | February, 2026 |
| **Online Interviews – interview evaluation criteria** | March, 2026 |
| **Selection** Results (incl. appeal proceedings) | March, 2026 |
| **Fellowship Start** | April – October, 2026 |

## 7. Contact details

For additional information, please get in touch with the BS4S Project Support Office at bs4s@ichf.edu.pl.