

INSTITUTE OF FUNDAMENTAL TECHNOLOGICAL RESEARCH POLISH ACADEMY OF SCIENCES

HUMAN RESOURCES STRATEGY FOR RESEARCHERS

Revised Strategy and Action Plan

Warsaw, January 2019



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1. INTRODUCTION

The Institute of Fundamental Technological Research of the Polish Academy of Sciences (in Polish: *Instytut Podstawowych Problemów Techniki Polskiej Akademii Nauk – IPPT PAN*) is the largest engineering sciences institute of the Polish Academy of Sciences (PAS). It is a public institution with a record dated back to January 1953 when the decision to establish such science problem-oriented institute within the structure of the newly (1952) created Polish Academy of Sciences was taken.

The mission of the Institute is to conduct high quality frontier research in the areas which are the focus of the world's science and technology and it covers the following goals:

- To be the reference centre of scientific and technological excellence, radical innovation and implementation of technology achievements into Polish scientific and industrial environment;
- To provide first-rate PhD education in contemporary technology, mechanics, acoustics, computing, and its advances related to biomedical applications, enhanced by internationalisation, links with industry, and the encouragement of a discovery spirit;
- To promote, support, drive and implement research and technology transfer initiatives and activities and links with industry and commerce to contribute to the sustainable development of society.

The main important fields of the Institute's expertise include advanced problems in modern mechanics, materials science, electronics, information and computational science. Extensive research is conducted especially in nanoscience and nanotechnology, micro- and nano-materials, multicomponent and multifunctional materials, biomaterials, computational mechanics, computational materials science, computational intelligence, computational biology and bioinformatics, multiscale engineering, ultrasonic medical diagnostics and bioengineering and microfluidic and smart technologies.

Advanced research is also conducted in several branches of fundamental science and technology, such as physics and thermodynamics of continua, fluid and experimental mechanics, laser beam interaction with metal surfaces, nanophotonics and applied mathematics.

The Institute has been traditionally active in operating its own post-graduate school (doctoral studies). Since its establishment in 1968 over 750 PhD degrees have been granted to Polish and foreign researchers in the fields of materials sciences and engineering, electronics, mechanics, computer science.

The updated data regarding the size of IPPT PAN in terms of staff, PhD students and research funding is presented in Section 1. of the <u>Internal Review</u>, published on the <u>webpage dedicated to C&C and HRS4R</u>.

The organisational structure of IPPT PAN covers the National Contact Point for EU Research Programmes (NCP) – a large administrative unit with a significant degree of autonomy whose task is to provide support to the whole Polish community, in particular universities, research organisations and companies interested in participation and participating in EU programmes for research and innovation. Obviously, researchers from IPPT PAN benefit from the NCP's services as well.





Fig. 1. Staff groups

The general staff structure and share remains similar to the one presented in HRS4R of 2016 (see: Fig. 1 above). For example, it still represents a close to exemplary mix of gender (see: Fig. 2 below).



Fig. 2. Staff by gender

The gender ratio among the research staff, including PhD students, is 26% : 74% (female : male). This is due to the fact that the technical sciences represented by the Institute have been traditionally recognised as 'male' disciplines. The issue is of a constant concern of the management of IPPT PAN and measures have been considered to attract more high quality female researchers. However, the availability of female candidates with relevant qualifications is limited on the labour market, in particular among advanced researchers. Although the Institute cannot do much to significantly change the market situation and attract advanced female researchers, the gender representation among younger researchers has been gradually improved. Currently the gender ratio among PhD students is 35% : 65% (female : male).

Researchers of IPPT PAN work in 8 key scientific departments:

- Department of Biosystems and Soft Matter
- <u>Department of Mechanics of Materials</u>
- Department of Information and Computational Science
- Department of Intelligent Technologies
- Department of Theory of Continuous Media and Nanostructures
- Department of Ultrasound

- Department of Experimental Mechanics
- Laboratory of Polymers and Biomaterials

Apart from the scientific departments listed above the Institute houses:

- Laboratory for Modelling and Imaging in Biomechanics
- Centre of Biomedical Research
- <u>Centre of Excellence and Innovation of Composite Materials</u>
- Smart Technology Centre

The Scientific Council and the Board of Directors create scientific policy, supervise and stimulate performance of the Institute in order to maintain its high quality and high standards. One of the measures is an annual internal evaluation of research activities of individual researchers.

Researchers receive support in administrative, including financial, aspects of their work from dedicated administration units such as Project Management and Research Coordination Office, Centre for Commercialization of Research Results and Technology Transfer, Accounting Office as well as the mentioned above National Contact Point for EU Research Programmes.

The Institute is active in implementing research projects (funded from both public and private sources) as well as in disseminating knowledge and promoting its activities among the society.

The main sources of public funding of research and innovation projects conducted by IPPT PAN's staff come from the state budget (statutory funding, grants from the Polish funding agencies: National Centre of Research and Development, National Science Centre, grants from the Foundation of Polish Science) and European Union funds (both Structural Funds and EU Framework Programmes for Research and Innovation). The Institute has been also active and successful in participating in other international (e.g. European Molecular Biology Organization, COST, European Space Agency and Vienna Science and Technology Fund) and bilateral (e.g. collaboration with USA, Japan and Hong Kong as well as EU countries, including Germany and Denmark) research and innovation programmes. The list of projects is available at http://www.ippt.pan.pl/en/realized-projects.html.

For many years now IPPT PAN research groups have been collaborating with industry.

One interesting example is a long-term collaboration within KMM-VIN AISBL (European Virtual Institute on Knowledge-based Multifunctional Materials) which was established in 2007 as a result of collaboration under the European Community then 6. Framework Programme for Research, Technological Development and Demonstration. KMM-VIN (<u>www.kmm-vin.eu</u>), with its headquarters in Brussels and a branch in Warsaw, has gathered institutions from 16 EU countries, including 20 companies. The aim is to conduct joint research regarding smart construction and functional materials for transport, energy and medical applications. For more than 10 years KMM-VIN AISBL has managed to successfully develop a new sustainable European model of research and industry integration.

The research conducted by the staff of IPPT PAN and its results have been presented in scientific publications. Each year the number of high quality papers is growing, for example 151 in 2016 and 167 in 2017. The data for the years 2016 and 2017 of publications in leading international journals, indexed in the prestigious Thomson Reuters Web of Science database, is 102 and 133 respectively. The list of publications is available on the IPPT PAN website (<u>http://www.ippt.pan.pl/en/scientificactivity/publikacje181.html</u>).



The Institute owns over 50 patents. The list of patents as well as patent applications of IPPT PAN - pending decisions of the Polish Patent Office - is available at: <u>http://www.ippt.pan.pl/en/scientific-activity/patenty.html</u>.

Since 2009 the Institute has been operating in a newly constructed building, located in a scientific campus where over 20 research institutes, university faculties and innovation companies have been active. Modern, well equipped laboratories allow the Institute's scientific staff of all career stages to conduct high quality research.

IPPT PAN keeps holding the highest scientific category (A+) in Poland conferred by the Minister of Science and Higher Education as a result of the regular scientific evaluation (so called parametrisation) process. According to the legal regulations, every Polish scientific institution is a subject to such evaluation.

More information about the Institute, its goals and achievements is available on its website: http://www.ippt.pan.pl/en/.

2. INTERNAL REVIEW – APPROACH, METHODOLOGY

The quality of the Institute in terms of research activities and overall performance is regularly evaluated by external bodies (such as the Polish Committee for Evaluation of Scientific Units and the Ministry of Science and Higher Education). Recently the process of scientific evaluation (parametrisation) of all scientific institutions in Poland has been conducted every 4 years. The process has resulted in grading institutions according to their achievements in the past reporting period. Since 2013 it is done in clearly defined comparison to other Polish institutions in the same reference group. According to the regulations, as a result of the evaluation process institutions can be labelled either A, or B or C category (A – the highest, C – the lowest). The outstanding ones in their reference group could receive a unique A+ category. IPPT PAN keeps holding A+ category in successive evaluations.

The Polish Academy of Sciences regularly monitors the activities of its institutes, which obviously covers IPPT PAN as well. Also, all institutions funding research and research-related activities (IPPT PAN has been a beneficiary of many of the programmes) monitor the quality of the works and results under each project.

In order to keep the highest quality and standards IPPT PAN conducts the already mentioned above annual assessment of its scientific performance. It covers individual achievements and provides a very good overview on the quality of performance of individual research departments and the whole Institute. The results of the assessment are presented to the Board of Directors and the Scientific Council and discussed in depth. Researchers with outstanding achievements are awarded according to the internal rules. Measures to motivate those who lag behind are clearly defined in the regulations and in doubtless cases they are implemented.

The process of internal review of 2-years implementation of HRS4R and the updated level of compliance with the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers (C&C) principles was launched in 2018 (required documents, i.e. Internal Review form and OTM-R Checklist were finalised in January 2019). It was supported by the Board of Directors. The Scientific Council was briefed on the process in May 2018 and discussed it.



Feedback regarding working conditions and other issues related to C&C principles has been collected from IPPT PAN community at various occasions, including seminars and other meetings. As the community of IPPT PAN is not very big, PhD students and staff have easier access to relevant organisational units and bodies, including directors, than in bigger organisations like for example big universities.

The key driver of the Internal Review process was the dedicated Working Group for the monitoring of the implementation of the Human Resources Strategy for Researchers (HRS4R WG), established in December 2016. It was the successor of the Working Group established in February 2016 whose task was to prepare HRS4R.

The HRS4R WG comprise dedicated and experienced representatives of all staff groups and PhD students who have been working with a clear view of improving the quality of performance of IPPT PAN in many aspects.

The composition of the group is presented in the <u>Internal Review</u> (published on the <u>webpage</u> <u>dedicated to C&C and HRS4R</u>).

The Group discussed in-depth the optimal methodology of the Internal Review. On the basis of the Institute's experience with the 2016 survey and feedback collected from colleagues HRS4R Working Group was of the opinion that carrying out a similar survey under Internal Review was problematic and discouraging (many questions, difficult language, significant time needed to respond to all 40, or even 80 questions if asking again about their importance, too many issues covered in a single C&C principle). Having in mind the regular works conducted by HRS4R WG during the whole implementation period, resulting in a good overview and careful monitoring of what was done, how it was done and whether it has had any impact on the quality of the working environment, it was decided to prepare the internal review on the basis of the feedback collected via individual contacts with representatives of various staff groups, in particular researchers and PhD students and the analyses made by HRS4R WG. This methodology allowed to keep the administrative burden for the staff and PhD students to a minimum. The Internal Review was focused on the level of implementation of all C&C principles with a particular focus on those which had received the lowest overall satisfaction scores in the 2016 survey and on those where - despite the high level of satisfaction of the staff and PhD students - improvements and changes were required. These were: good practice in research, in particular IT-related issues, public engagement, selection, stability and permanence of employment, gender balance, value of mobility and recognition of mobility experience, variations in the chronological order of CVs, IPR, career development and access to career advice, complains/appeals, participation in decision making bodies, relations with supervisors and supervision a managerial duties and - in general - access to clear and concise information.

Further details regarding the approach and methodology of internal review conducted by IPPT PAN are provided in the <u>Internal Review</u>.

3. INTERNAL REVIEW - FINDINGS

This section presents the summary of the Internal Review findings.

During the Internal Review the existing legal framework applicable to IPPT PAN in the context of HRS4R implementation was reviewed. It was done despite the regular monitoring of changes



in the national and European legal framework which is part of the standard activity of the Institute. The review covered the national and institutional regulations as well as existing practice of the Institute. The conclusion of the review was that the C&C principles were reflected in the Polish legislation and the internal regulations, guidelines and procedures at IPPT PAN. The only changes which are currently worked on internally have been implied by the new law on higher education and science (Constitution for Science). The changes will not have significant impact on HRS4R Implementation as such.

It has to be underlined that the internal regulation system forms as stable, predictable and flexible framework for the staff as possible in order to create and maintain favourable working environment.

HRS4R is well rooted in the overall strategy of IPPT PAN and supports well its mission to conduct high quality research in areas in scope of the Institute. Creation of user-friendly environment and favourable working and studying conditions stimulates high quality results.

The information policy, including Ethical and professional aspects, has been improved and the staff has been regularly reminded of the existence and importance of C&C, the Code of Ethics for Researchers, approved by the General Assembly of the Polish Academy of Sciences (last edition approved in 2016) and internal regulations, including non-discrimination, accountability, contractual and legal obligations and IPR.

Although all principles covered by Ethical and professional aspects section of C&C have been implemented, actions aiming at further improvements are planned, for example updating the development strategy of IPPT PAN and its public availability in the English version, increased internal availability of documents and services in English offered by a larger than currently share of administration staff, rebuilding of the web-based information services of IPPT PAN and launching promotion activities in social media.

Recruitment and selection rules, procedures and processes were well developed already prior to the beginning of HRS4R implementation and the situation has not changed.

The recruitment and selection process is transparent and merit-based. It involves appropriate bodies and organisational units of IPPT PAN, in particular the relevant Scientific Council committees, the Scientific Council itself and the Board of Directors. The whole process is fully supported by professional, well-trained representatives of the HR Office.

One of a very few improvements which needs to be finalised in the next cycle of HRS4R implementation is to strengthen and make more visible in the recruitment and selection process the principles regarding Variations in the chronological order of CVs (Code) and Recognition of mobility experience (Code). The work is underway. The need for the relevant adjustment of the internal regulations was announced to the Scientific Council in May 2018. The continuation of the action is planned in the Revised Action Plan and the modified resolution is foreseen to be adopted by the Scientific Council in 2019.

Further details are provided in OTM-R Checklist.

The working conditions as such have been generally positively assessed by the staff and the feedback regularly collected from them, also as part of the Internal Review, have delivered no fundamental complains about research environment, working conditions, stability and permanence of employment, funding and salaries, IPR and co-authorship, recognition of the profession and gender issues.



The recent investments in research and IT equipment, including new servers, have been appreciated.

Despite the HRS4R actions implemented in 2017 and 2018 with the view of improving access to information and regular distribution of information (e.g. on research and mobility programmes, IPR, employment rules) there is a need for further actions. They are planned in the Revised Action Plan.

Also, despite the lack of feeling of gender imbalance in terms of equal treatment and fair conditions among the staff and PhD students and the positive trend in a growing share of female researchers among the younger generation, actions to further increase the awareness of the gender balance principle and to promote more gender balanced representation in various internal bodies will be implemented.

Although individual career advice is offered on the research department level and the HR Office provides necessary support on the case by case basis, the systemic approach across the whole Institute needs to be improved. The Revised Action Plan covers new actions to address the issue.

In order to support the staff and PhD students in resolution of conflicts in the professional environment in an independent and confidential way it was planned to appoint an ombudsman. The process of election is currently in its final phase. It is planned to be finalised in I - II Q 2019.

The way IPPT PAN functions, with merit-based collaboration between researchers, guarantees sound professional support provided in a friendly atmosphere. The organisational structure with a clear division into research departments and research groups (supported by the clear internal legal framework, including Statutes of IPPT PAN and Organisational bylaws, updated in 2018) ensures sufficient level of formal and real supervision.

Freedom to participate in trainings researchers need, seminars and conferences allows them to develop new and update existing knowledge and acquire new skills.

In order to enlarge the scope of professional competences of managerial staff of IPPT PAN it was planned to organise soft skills trainings. The pilot phase of trainings will be finalised in III Q 2019.

The findings of the internal review confirm that IPPT PAN is recognised as an employee-friendly place, providing good working conditions.

Detailed findings of the internal review of 2-years' cycle of HRS4R implementation are described in the <u>Internal Review</u> (available on the <u>webpage dedicated to C&C and HRS4R</u>). The structure of the document follows the obligatory template of the European Commission.

4. OTM-R POLICY

IPPT PAN officially started the process of HRS4R preparation in early 2016 and the first HRS4R was developed prior to the introduction of the Strengthened HRS4R process by the European Commission (the HR Excellence in Research award was granted to IPPT PAN in 2016). Thus the preparation of OTM-R checklist was not then required as part of the Initial Phase of HRS4R. Despite this fact the overall compliance of the institutional framework regarding the recruitment process (national and internal regulations and practice) was covered by the Gap Analysis and addressed in HRS4R. The general conclusion was that the regulations, procedures and practice of IPPT PAN were in line with C&C principles and requirements.



<u>OTM-R Checklist</u> prepared as part of the Internal Review held in 2018/2019 is presented as a separate file available on the <u>Institute's webpage dedicated to C&C and HRS4R</u>.

5. CONCLUSIONS

In the light of the findings of the Internal Review it has been concluded that current practices at the Institute of Fundamental Technological Research of the Polish Academy of Sciences are in line with the C&C principles and a visible progress has been made for the last 2 years.

The general level of awareness of C&C principles has been increased. The general principles of conducting research, in particular ethics, professional responsibility, accountability and evaluation systems are respected and implemented. IPPT PAN provides favourable working conditions, including transparent remuneration and award systems, which create a good environment for conducting research. Further, more detailed, conclusions drawn from the Internal Review and the regular monitoring and analyses conducted during the whole HRS4R implementation period are presented in the Internal Review.

Despite the generally positive assessment, some aspects need further improvements. They are addressed by the actions presented in Section 3. Actions of the <u>Internal Review</u>.

6. REVISED ACTION PLAN

The full list of the actions planned from the start of HRS4R implementation is in Section 3. Actions of the Internal Review available on the webpage dedicated to C&C and HRS4R.

The summary of the actions for the years 2019-2021 is presented below. They comprise actions continued from the first Action Plan as well as new ones.

The actions which will be continued are the following:

- A.3. To undertake measures based on amended IT and data security policy which will lead to coordinated management of IT equipment and IT network;
- A.4.To create a dedicated society-friendly website on research conducted at the Institute; The action will be continued as part of the new action aiming at rebuilding the web-based information services of IPPT PAN;
- A.7. To review the existing rules and practices at IPPT PAN in the context of the principle and adjust them accordingly; The last step of the action regarding C&C 17. Variations in the chronological order of CVs (Code), which is a relevant modification of the Scientific Council Resolution 'Rules of employment of scientists', will be finalised together with action 8;
- A.8. To modify the Scientific Council Resolution 'Rules of employment of scientists' by quantifying the mobility criterion in order to amplify its value;
- A.9. To continue the practice of regular dissemination of information on mobility offers;
- A.10. To continue the practice of organising information seminars on mobility programmes and their advantages;



• A.11. To carry out another information action with the view to further increase the awareness of the regulations ensuring stability and permanence of employment.

The action will be repeated in the future whenever needed (in particular, when changes in the national legal framework occur);

- A.12. To regularly monitor the general implementation of the principle regarding stability and permanence of employment; *Regular reporting to the Board of Directors and the Scientific Council has been planned;*
- A.14. To regularly monitor the gender balance in employment, provided that the principle of the highest quality of employees is a priority;

The action will be continued as it is a very useful HR strategy management tool;

• A.15. To improve the visibility of information on favourable working conditions on the website of the Institute with the aim of increasing the attractiveness of IPPT PAN as a 'research-friendly' institution

The action will be continued as part of the new action aiming at rebuilding the web-based information services of IPPT PAN;

• A.18. To modify the IPPT PAN's website in order to increase the visibility of information on career development;

The action will be continued as part of the new action aiming at rebuilding the web-based information services of IPPT PAN;

• A.20. To elect (bottom-up approach) and appoint an ombudsman;

The action is in its final stage;

• A.22. To organise series of soft skills trainings, workshops in smaller groups (research departments)

The implementation of the action is well advanced and will be finalised in III Q 2019;

• A.24. To prepare a 'HR-dedicated space' in IPPT PAN's internal network with staff-useful information package, including Labour law regulations and employees' rights and obligations; *The action will be continued as part of the new Action aiming at rebuilding the web-based information services of IPPT PAN.*

The new actions are following:

- A.26.To rebuild the web-based information services of IPPT PAN and to launch promotion activities in social media;
- A.27.To update the development strategy of IPPT PAN and to make it available in English on the Institute's website;
- A.28. To develop and publish on the IPPT PAN webpage the OTM-R policy in the form of a single document collecting the existing rules and regulations; the document will be available in English;
- A.29. To organise seminars dedicated to career development for the staff and PhD students;

Two actions dedicated to better respond to the needs of non-Polish speaking community of IPPT PAN as far as administrative requirements and support is concerned:

• A.30. To make basic internal documents (contracts, rules, forms) available in English;



• A.31. To organise language courses for the administration, supporting researchers;

Two actions aiming at easier assimilation of newcomers to the IPPT PAN's environment (also useful for other staff members and PhD students as an easy reference to the rules and practical information set):

- A.32. To prepare a guide for newly enrolled PhD students in English;
- A.33. To prepare an information brochure for the staff, in particular newcomers, on IPPT PAN (basic rules and procedures, including document flow, who is in charge of what);
- A.34. To conduct short, well focused satisfaction surveys among the staff and PhD students (an action dedicated to obtaining a regular feedback on the working conditions and environment);
- A.35. To increase the number of research seminars held in English;
- A.36. To conduct a central health and safety training for staff and PhD students.

7. IMPLEMENTATION AND MONITORING OF THE REVISED STRATEGY AND ACTION PLAN

The Internal Review and the OTM-R Checklist were submitted to the European Commission in January 2019. They were published – together with the Revised HRS4R and Action Plan – on the webpage dedicated to C&C and HRS4R.

The implementation of the Action Plan will be monitored by the Working Group for the monitoring of the implementation of the Human Resources Strategy for Researchers, which will continue its activities for the duration of the next cycle. The Group will be in charge of the regular assessment of quality improvement in implementation of the Revised Action Plan as well as of the regular analysis of potential bottlenecks and possible further improvements which would facilitate employees' work and increase their level of satisfaction with the work they do and the working environment they are provided with.

The Group will hold quarterly meetings to execute its tasks. According to the needs, the Working Group may hold additional meetings and consult ideas and proposed solutions remotely (mainly, via exchange of e-mails).

One meeting per year will be dedicated to a comprehensive analysis of the achievements and challenges of the implementation during the past 12 months' period, with a special focus on the impact of the actions. The analysis will allow to assess the efficiency of the process on the overall functioning of the Institute and to consider potential additional or corrective measures, if needed.

The conclusions of the annual analyses will be reported to the Board of Directors and the Scientific Council of the Institute who - similarly to the period of the past 2 years of HRS4R implementation - will be involved in implementation of certain tasks and will continue to keep an overview of the process and its impact.

The monitoring of the progress will be based on the reference to targets and indicators set out in the Revised Action Plan.

Perception of introduction of concrete solutions as well as the overall quality of the working environment at IPPT PAN will be monitored via regular, short, well focused surveys conducted



among the staff and PhD students. The surveys will help to identify further barriers and challenges and further actions needed to improve the situation.

By the end of 2021 the process of preparation for the award renewal will be launched. It will be based on the regular monitoring works conducted during the 3-years' period and on a well prepared comprehensive survey regarding all principles of C&C conducted among the staff and PhD students. Although in general the survey will follow the same rules as the one conducted in 2016 (in order to bring comparable results), it will be simplified in terms of complexity and time consumption in order to reduce the burden on respondents.

8. FINAL REMARKS

During the HRS4R preparatory phase and over the past two years IPPT PAN has gained a substantial experience on the process and a real understanding on what it means in practice. Despite the guidance provided by the European Commission and exchange of best practice with other institutions, it has been a real learning by doing process. The substantial effort attributed to the preparation and implementation of HRS4R has started bringing fruits by making the Institute realising its strengths and weaknesses in its overall performance and helping it to launch the necessary improvements. The HRS4R process has proved to be a very useful management tool, which serves not only the HR strategy as such but the overall development strategy of IPPT PAN.

It supports very well the activities of IPPT PAN aiming at continuous improvement of its performance and creation of favourable conditions for scientists conducting research.

Since its establishment over sixty years ago IPPT PAN has striven for excellence. The ambition and mission of the Institute have remained unchanged: to conduct the high quality research in the areas of the focus of the world's science and technology.

Over the decades IPPT PAN has managed to attract and keep both promising and advanced researchers from Poland and abroad. Also, Its own doctoral studies have been an excellent source of the high quality, inspiring human research minds. The openness of IPPT PAN and its staff has resulted in a large number of international research collaboration contacts with institutions and scientists all over the world. They result in joint projects, publications and new cooperation avenues.

The achievements of the Institute have been widely recognised and awarded. The highest scientific category (A+) in Poland, conferred by the Polish Minister of Science and Higher Education, is one of the examples. Another one is the prestigious HR Excellence in Research award granted to IPPT PAN in 2016.