**Prospective supervisor’s form**

**Name of the prospective supervisor:** Katarzyna Majewska  
**Academic title:** DSc, PhD

**Contact details:**
- **Institute of the Polish Academy of Sciences (PAN-Polska Akademia Nauk):**  
  (Institute of the Fluid-Flow Machinery, PAS (Instytut Maszyn Przepływowych PAN))
- Department of Mechanics of Intelligent Structures Department  
  - Phone: + 48 58 5225 121  
  - E-mail: k.majewska@imp.gda.pl  
  - Personal web page: https://www.imp.gda.pl/en/research-centres/o4/o4z1/people/KatarzynaMajewska  
  - Orcid ID number: https://orcid.org/0000-0001-6370-5786

**Research interests / expertise:**

<table>
<thead>
<tr>
<th>Disciplines represented in the Doctoral School (you may select the discipline represented in the Doctoral School):</th>
<th>Research areas (you may select up to two research areas for each discipline represented in the Doctoral School):</th>
</tr>
</thead>
</table>
| **Main discipline [A]**  
* (mechanical engineering (IME)) | **Research area corresponding the main discipline [A]**  
* (for promotion purposes)  
Machine Dynamics and Mechatronics  
*Please select for ILiT**  
| **Additional research area corresponding the main discipline [A]** (not chosen/mentioned above) | Manufacturing Techniques |

**Key words (obligatory four key words describing research interests / expertise):**

- structural health monitoring and non-destructive testing  
- additive manufacturing  
- composite materials  
- optical sensing
Research interests or topics offered for PhD research * (no less than 500 and no more than 2000 characters, please observe the limit of not more than 300 words) Generally the research interests and topics offered for PhD students will be mostly related to metallic, additive manufactured polymeric, and composite structures applied for in e.g. marine and aircraft industries. Scientific work will be mostly focused on structural health monitoring (SHM) and non-destructive testing (NDT) methods using optical fibre sensors (especially fibre Bragg grating (FBG) sensors), infrared thermography, as well as terahertz spectroscopy. Experimental and numerical analyses will be related to mechanical characteristics of structures, material degradation processes due to environmental and operational factors influence, internal structure analyses of anisotropic materials (e.g. detection and determination of location, size and type of mechanical damage as well as contaminated area). Also the use of multi-functional materials (especially magnetic shape memory alloys) for static and dynamic behaviour control of various structures can be proposed.

Supervision:

1. The number of PhD students who have graduated under your supervision*: 0
2. The number of PhD students currently supervised:
   a. within the current doctoral school * 0
   b. within doctoral studies (previous system) * 0
3. Are you currently accepting new PhD students*: (Polish and foreign

Funding or special equipment needed to carry out a PhD project:

1. Is funding available for experimental work *(Not needed)
2. Is the equipment needed to complete a PhD project available in your lab/department *(Yes)

Bibliometric indicators:

1. Number of journal publications in WoS/ Scopus * 35/51
2. Citations excluding self-citations * WoS 114 Scopus 192
### Most important publications*
*(please select at least 1 and no more than 5 publications published within the period 1.01.2019 – date of filling in the form, each publication should have at least 70 points)*

<table>
<thead>
<tr>
<th>No</th>
<th>Authors*</th>
<th>Title*</th>
<th>Journal*</th>
<th>Number of points according to the current list of the Ministry of Science and Higher Edueation*</th>
<th>Publication year*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Majewska K., Mieloszyk M., Jurek M., Ostachowicz W.</td>
<td>Coexisting sub-zero temperature and relative humidity influences on sensors and composite material</td>
<td>Composite Structures</td>
<td>140</td>
<td>2021</td>
</tr>
<tr>
<td>5.</td>
<td>Mieloszyk M., Jurek M., Majewska K., Ostachowicz W.</td>
<td>Terahertz time domain spectroscopy and imaging application for analysis of sandwich panel with embedded fibre Bragg grating sensors and piezoelectric transducers</td>
<td>Optics and Lasers in Engineering</td>
<td>140</td>
<td>2020</td>
</tr>
</tbody>
</table>

### Most recent externally funded projects you were involved in
*(you may select up to 3 projects starting in or after 2000):*

<table>
<thead>
<tr>
<th>No</th>
<th>Project title*</th>
<th>Name of the Principal Investigator (PI)*</th>
<th>Name of the institution the project was carried out in*</th>
<th>Name of the granting institution*</th>
<th>Starting year*</th>
<th>Ending year*</th>
<th>Role in the project*</th>
<th>(PI/Co-I/R)**</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>1.</th>
<th>Additive manufactured composite smart structures with embedded fibre Bragg grating sensors</th>
<th>Magdalena Mieloszyk</th>
<th>Institute of the Fluid-Flow Machinery, PAS (Instytut Maszyn Przepływowych PAN)</th>
<th>National Science Centre</th>
<th>2020</th>
<th>2023</th>
<th>(R)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Wpływ jednoczesnego oddziaływania temperatury i wilgotności na struktury anizotropowe: od teorii do badań doświadczalnych</td>
<td>Wiesław Ostachowicz</td>
<td>Institute of the Fluid-Flow Machinery, PAS (Instytut Maszyn Przepływowych PAN)</td>
<td>National Science Centre</td>
<td>2017</td>
<td>2021</td>
<td>(Co-I)</td>
</tr>
</tbody>
</table>

**PI stands for principal investigator (refers to the holder of an independent grant and the lead researcher for the grant project), Co-I for co-investigator (Co-I assists the principal investigator in the management and leadership of the research project), R for researcher**

Additional relevant information (you may add any other relevant information, e.g. awards for PhD students whom you supervised no more than 1600 charters and 200 words)

Scientific care for MSc students:

1. Supervising the student (during Dar Młodzieży cruise) of the Maritime University of Gdynia, Faculty of Navigation. The supervising consisted: theoretical (introduction to the topic of fibre optic sensors) and practical approach (surface preparation, gluing, securing), mounting fibre optic sensors on the real structure (mast), 2012
2. Joint supervising the students of the Gdansk University of Technology, Faculty of Technical Physics and Applied Mathematics, specialization Nanotechnology. The subject: the manufacturing of composite with embedded FBG sensors and analysis of the achieved structures, 2015
3. Joint supervising the student of the Gdansk University of Technology (Faculty of Technical Physics and Applied Mathematics (inter-faculty direction: Faculty of Technical Physics and Applied Mathematics, Faculty of Chemistry, Faculty of Mechanical Engineering, specialization: Materials Engineering, 2nd degree). The research concerned on: measurements (using FBG sensors) of panel response, with a sandwich-type structure made of composite material with glass fibre reinforcement, for modal hammer impulse loading via using the LabVIEW program, and preliminary analysis of the results obtained using the MATLAB program, 2018
4. Joint supervising the students in the frame of Department of Mechanics of Intelligent Structures team in the field of SHM, NDT, OF, IRT, continuous care from 2014