<table>
<thead>
<tr>
<th>Title (tentative):</th>
<th>Realization of a prototype of an optical radio frequency sensor for MRI</th>
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<tbody>
<tr>
<td>Thesis advisor(s):</td>
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**Description**

**Motivation and application domain**  
Design and characterisation of the magnetic coil coupled to the electro-optical converter on a 4.7T preclinical MRI

**General objectives and main activities**  
Analog optical transmission of MRI signals between local coil (LC) and receiver (RX) has the advantage of that large bundles of copper cables including cable traps for shield wave suppression can become redundant. Metallic cables can be replaced with optical fibers carrying both, the MRI signal from the LC to the RX and the power for driving the preamplifiers and the electro-optic conversion.  
The candidate will contribute mainly to the design and characterisation of the magnetic coil coupled to the electro-optical converter as well implementation of the whole assembly on the 4.7T preclinical MRI imaging system of the PiloT platform housed by the CREATIS laboratory.

**Training Objectives (technical/analytical tools, experimental methodologies)**  
MRI (theory and practice) RF coil principles, application of electro-optic based on Pockel's effect.  
The work will be monitored daily to use different equipments and weekly for the follow-up of the project

**Place(s) where the thesis work will be carried out:**  
CREATIS laboratory - Lyon - France

**Additional information**

| Maximum number of students: | 1 |
| Financial support/scholarship: | Borsa Erasmus + |