JOB DESCRIPTION

Vacancy Ref: A2059R

<table>
<thead>
<tr>
<th>Job Title:</th>
<th>Advanced alloys mechanical testing PDRA</th>
<th>Present Grade: 6</th>
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</thead>
<tbody>
<tr>
<td>Department/College:</td>
<td>Department of Engineering</td>
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<tr>
<td>Directly responsible to:</td>
<td>Prof Pedro Rivera</td>
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<tr>
<td>Supervisory responsibility for:</td>
<td>Some supervision of PhD students</td>
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</tbody>
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Other contacts

Internal:
Prof. Claudio Paoloni

External:
University of Sheffield, Prof Mark Rainforth

Major Duties:

1. Performing systematic testing on a three-ball-on-rod rolling contact fatigue machine on advanced alloys. The aim will be to experimentally establish a relationship between microstructure produced at early stages of steel processing, and the life of components subjected to high contact stresses.

2. Interpretation of the previous life results in light of physical and statistical models taking into consideration inclusion microstructure.

3. By employing the physical models, prediction of optimal microstructures to enhance product life and improve mechanical behaviour.

4. Performing testing to quantify the effects of hydrogen on rolling contact fatigue life.


6. Perform detailed metallographic characterization on tested specimens.