

## Research Grants for PhD students from the China Scholarship Council

Information Form (please read the guidelines carefully on the website [www-csc.utt.fr](http://www-csc.utt.fr))

Supervisor's name :  Given names :

Status (prof., assistant prof., ...):

Laboratory :  Website address :

Institution :  Website address :

Scientific competence of the supervisor:

Thermal spray process, diagnostic systems, coating characterization

Two major publications in the field proposed for the PhD :

1.
2.

Website address of the personal page :

**Supervisor's email :**

**Description of the research work proposed for a PhD**

**Topic # (see list) :**

Title :

Subject :

Thermally sprayed ceramic coatings are widely used in energy, transportation, petrochemical and advanced manufacturing sectors for surface protection against wear, corrosion, erosion and high-temperature degradation. Their practical value lies in the ability to tailor surface properties without changing the bulk material, thereby extending component service life and supporting cost-effective repair.

A thermally sprayed coating is formed by the successive impact, spreading and stacking of molten or semi-molten particles. Its microstructure is therefore inherently lamellar, containing splat boundaries, pores, oxides and partially bonded regions. Among these features, the bonding quality between adjacent particles plays a key role in determining the coating cohesion and strongly influences crack initiation, crack propagation and resistance to surface damage. As a result, interparticle cohesion is one of the most important factors governing the wear and corrosion performance of thermal spray coatings.

However, the intrinsic cohesion of thermally sprayed coatings remains difficult to evaluate. Conventional tensile adhesion

**Keywords :**

Thermal spray, coating characterization, modeling, cavitation erosion

**Expected collaborations :**

UTINAM University of Besancon , France

**Background required from the applicant :**

The following scientific and technical competences will be requested: 1) knowledge in thermal spray processes, 2) knowledge in experimental approach 3) knowledge in characterization techniques

Existence of a PDF file detailing the proposal ("yes" or "no") :

(see guidelines on the website [www-csc.utt.fr](http://www-csc.utt.fr))