Study of Graphite-Metal alloy composites

Abstract

Graphite-metal alloy composites such as Ni-Graphite, Cu-Graphite etc. have been reported to yield excellent properties with desired ones of both graphite and metal. For e.g., Ni-Graphite composites have been found important for hot tribology applications since they have the lubrication properties of graphite and the high temperature strength of Ni as structural material. The present PG dissertation topic aims to study the synthesis and characterization of graphite-metal alloy composite (e.g. Ni-Graphite or Cu-Graphite) using powder metallurgy processing and sintering. Ball milled powder mix of metal and graphite shall be subjected to field assisted/plasma sintering using Gleeble system. The samples shall be characterized using XRD, SEM-EDS, Raman Spectroscopy and laser flash methods. High temperature tribology studies shall be undertaken, subject to availability.

Academic Project Requirements:

1) **Required No. of student(s) for academic project: 01 No.**

2) **Name of course with branch/discipline: Materials Science / Engineering / Mechanical Engineering/Industrial Infrastructure/Nucl. Sci.&Tech.**

3) **Academic Project duration:**

   (a) **Total academic project duration: 42 Weeks**
   (b) **Student's presence at IPR for academic project work: 4 Full working Days per week**

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