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## Liquid-metal foams - Feasible in-situ experiments under low gravity

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**Author(s):** Babcsan N, Garcia-Moreno F, Leitmeier D, Banhart J**Editor(s):** Roosz R; Rettenmayr M; Gacsi Z
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**Abstract:** Metal foams are quite a challenge to materials scientists due to their difficult manufacturing. In all processes the foam develops in the liquid or semiliquid state. Liquid-metal foams are complex fluids which contain liquid metals, solid particles and gas bubbles at the same time. An X-ray transparent furnace was developed to monitor liquid metal foam evolution. Aluminium foams - similar to the commercial Metcomb((R)) foams - were produced by feeding argon or air gas bubbles into an aluminium composite melt. The foam evolution was observed in-situ by X-ray radioscapy under normal gravity. Drainage and rupture were evaluated during the 5 min foam decay and 2 min solidification. Argon blown foams showed significant drainage and cell wall rupture during the first 20 s of foam decay. Air blown foams were stable and neither drainage nor rupture occurred. We demonstrated the feasibility of experiments during parabolic flight or drop tower campaigns. However, the development of a foam generator for low gravity is needed.

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**Reprint Address:** Babcsan, N (reprint author), Hahn Meitner Inst Berlin GmbH, SF3, D-1000 Berlin, Germany
**Addresses:**

1. Hahn Meitner Inst Berlin GmbH, D-1000 Berlin, Germany
2. Tech Univ Berlin, D-1000 Berlin, Germany

**E-mail Addresses:** [babcsan@hmi.de](mailto:babcsan@hmi.de)**Cited by: 2**

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 Srivastava VC, Sahoo KL [Processing, stabilization and applications of metallic foams. Art of science MATERIALS SCIENCE-POLAND 25 3 733-753 2007](#)

 Babcsan N, Moreno FG, Banhart J [Metal foams - High temperature colloids - Part II: In situ analysis of metal foams COLLOIDS AND SURFACES A-PHYSICOCHEMICAL AND ENGINEERING ASPECTS 309 1-3 254-263 NOV 1 2007](#)
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