INTRODUCTION: THE 5TH ABLATION WORKSHOP AND BEYOND

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What are the main characteristics of a workshop and what distinguishes a successful meeting from the less successful? It is a simple answer yet very subtle: that of bringing a philosophy to life. Reaching out, encouraging people to participate, get them motivated and involved and strive to make it a permanence and not only a once a year occurrence. That is the real engine behind success.

This year’s workshop will focus on the development, validation and uncertainty quantification of the high-fidelity models used to simulate the behavior of ablative materials. Sessions and comparison activities will be held on the various aspects of modeling the surface and in-depth performance of ablative materials, experimental techniques to validate the resulting models, and uncertainty quantification methodologies. The state of the art of ablation modeling has changed little in the past 40 years, largely because of a lack of validation data with which to justify improvements to the baseline models. However, in recent years significant progress has been made on the numerical side, and it is now time to develop a set of validation experiments to test key aspects of the new and proposed models, quantify remaining uncertainties, and prioritize limited research budgets on those aspects that will have the largest impact on minimizing mass and maximizing reliability of spacecraft thermal protection systems.

Beyond the technical aspects, we are committed to make this and every workshop a successful event. To foster improved communication we have reached outside of the traditional community from which this workshop has emerged and we have created a new, broader and more diverse, international community. That has also brought with it an infusion of new ideas, know-how and techniques from adjacent disciplines.

We try our best to make this workshop a dynamic environment, a place where people come to brainstorm about existing problems or simply come up with new ideas that need to be formulated into an innovation challenge. We are not only a simple “problem solving community”. We encourage collaboration and combination of ideas in order to maximize the creative potential. And hopefully for ideas identified as being potential innovations to move towards implementation, testing and development. Reviewing the implementation of new ideas should indicate new needs which can be transformed into challenges which, in turn, start a new innovation process cycle and hopefully inspire and change corporate goals and structures.

Innovation is the way to keep us continuously challenged.

We tried to create prototypes, such as the theoretical ablator, which are an excellent means for testing ideas. Not only do they allow us to see how an idea would actually look in implementation, but building and playing with a prototype is a good method for further improving upon the core idea. Creating TACOT has given modelers the opportunity to compare the results of their codes. This year we challenge the community with a dedicated session to discuss the setup of an experimental test case.

We work hard to ensure that funding of this workshop and the next ones to come is not an impediment, therefore ensuring that we can keep the community going and growing. 2013 will be the first year of a Gordon Research Conference on the topic of Atmospheric Reentry Physics. Save the date: February 3-8, 2013 in Ventura California! At the workshop we will provide you with key details and requirements specific to a Gordon Research Conference, a tentative technical agenda and a description of the acceptance process for contributions to the conference. For more information please check the Gordon Research Conference website: http://www.grc.org/programs.aspx?year=2013&program=atmosentry

Finally, we try to provide the opportunity for you to stay active and involved in-between workshops as well. We encourage you to find and define your level of involvement, commitment and participation. We try to motivate and infuse you with enthusiasm. The discussion times and brainstorming sessions we have allocated in the program serve this exact purpose: to hear your views and ideas. Please come prepared as such!