Risk and Uncertainty in Hypersonics

- What is an acceptable level of risk? How much are we willing to spend to reduce that risk? For hypersonic flight, the risks and costs will always be much higher than for present-day commercial air transports.
- What is an acceptable level of uncertainty regarding the risks? The uncertainty is **also** high for hypersonic vehicles, and the cost of reducing the uncertainty is high.

Management of Uncertainty and Risk

- How much are we willing to spend to reduce the uncertainty? When the uncertainty is high, pessimists and optimists can differ widely. If we tolerate too much uncertainty, and are driven by the system towards an optimistic attitude, we may accept too much risk. We may even accept risk which could be cost-effectively reduced.
- Excessive optimism amid high uncertainty should not be an acceptable way to get projects funded. The temptation is always there, and must be resisted.
- *"For a successful technology, reality must take precedence over public relations, for nature cannot be fooled."* Richard Feynman, Report of Presidential Commission on Challenger Accident, Appendix F, 1986.