Navigation and Ancillary Information Facility

# Welcome

## to the

# SPICE Tutorials

April 2016

# Objectives



- Provide an overview of the entire SPICE system
- Provide a sense of the purpose and uses of SPICE
- Provide an introduction to the use of primary SPICE components
- Provide examples of how to use SPICE software and data files
- Provide some insight into conventions and common problems
- Provide a substantive programming example
- Provide a peek at new capabilities being worked on or considered
- Familiarize you with available SPICE resources

# Scope



- **Broad coverage**
  - Begins at a high level, but quickly drills down to details
  - Touches on many SPICE-related topics that could be of interest to science and engineering teams
    - » Depth of discussion varies somewhat amongst topics
- **Provide information for FORTRAN, C, IDL and MATLAB programmers**
- **Some tutorials have important material provided in a "Backup" section: you should read those charts too!**
- **Some topics are addressed rather little or not at all**
  - Kernel production
  - Archiving SPICE data

# Repeated Material



- Some topics will be repeated in two or more tutorials
  - We're not trying to bore you, but…
    - » we don't wish to assume people will read all of the tutorials at the same time
    - » we think some items are sufficiently important to mention them more than once

# Your SPICE Odyssey Begins Here

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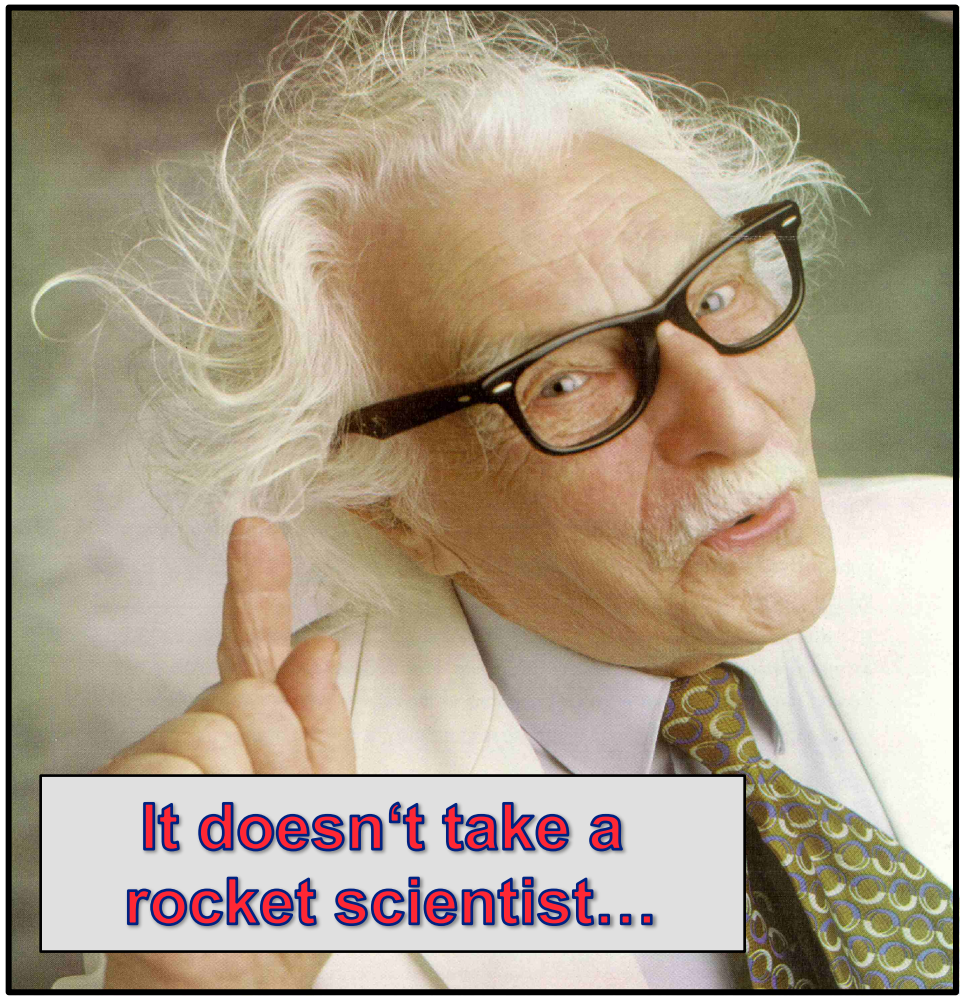



… but it does take a modest amount of effort to learn enough about SPICE to begin to use its features with good success.

It helps to have some math skills, some innate sense of spatial orientation, and some familiarity with your computer's operating system, a code editor, and a compiler or Integrated Development Environment (IDE).

# SPICE Seems "Large"



- The generic SPICE Toolkit contains:
  - over 1000 public APIs ("modules" or "subroutines")
  - about 14 utility and application executables
  - about 23 subsystem technical reference documents
  - and more

- Don't let this size bother you… just work your way into it bit by bit
- Most customers use only a handful of these APIs
- Hundreds of others just like you are using SPICE today

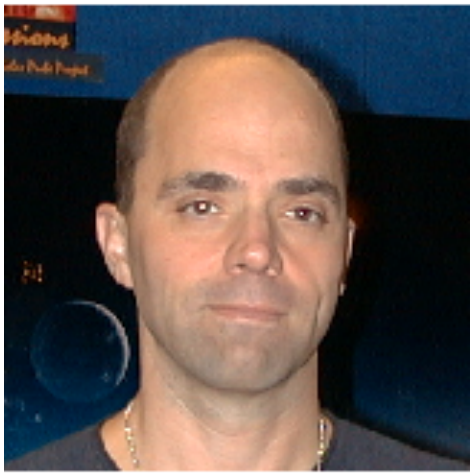
# The NAIF Team at JPL

**Navigation and Ancillary Information Facility**

**Chuck Acton**

**Nat Bachman**

**Boris Semenov**



**Ed Wright**