Neutron HPC

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NATIONAL ACCELERATOR LABORATORY

FY2017 Proposal from SLAC team to DOE

SLAC team has proposed a ~0.5FTE work-plan for FY17+ (funding pending):
- to capitalize on the very successful experience of MPEXS
- to leverage expertise of Stanford NVIDIA Center of Excellence (ICME)
- to leverage SLAC specific expertise on neutron interactions, especially at lower energies

Develop a stand-alone, GPU friendly, neutron specific physics simulation library:
- outside of any specific "toolkit", but with integration into Geant4 and GeantV in mind
- specialized code to deal with (low Energy) neutron interactions

Why (low-E) neutrons?
- for their nature they perform several very similar interactions: physics variety is relatively simple
- can reasonably limit variety of secondary species (pre-requisite for efficient GPU-style code)
- great local expertise that make the problem a success and a laboratory for possible future extensions

Preliminary Overview
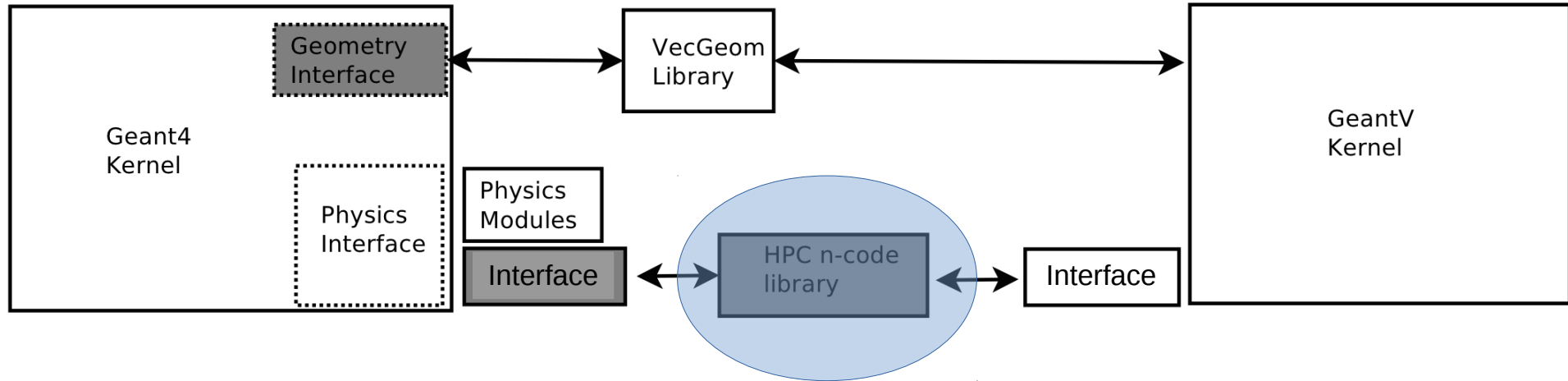
Proposed Manpower (funding pending)

T. Koi → Main developer

M. Asai → Interface to G4, interface to ICME (SU)

A. Dotti → Interface to Geant-V team