

Briefing to  
Dr. Walter E. Massey  
Provost and Senior Vice President  
Academic Affairs  
University of California

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Mohamed A. Abdou  
Professor, Mechanical, Aerospace and Nuclear  
Engineering Department  
School of Engineering and Applied Science  
University of California, Los Angeles

- Joined UCLA in 1983
- Established Academic and Research Program on Fusion Nuclear Technology (FNT)

FNT:

Energy Conversion, Tritium Fuel Cycle, High Heat Flux Components, First Wall/Blanket

Technical Disciplines:

Heat Transfer, Fluid Mechanics, Materials, Structural Mechanics, Neutronics, Mechanical Engineering

Research Elements:

Modeling, Analysis, Experiments, Design

- Extramural Support: ~ \$2M/yr.
- Manpower: 12 Graduate Students  
10 Research Staff

- International:

Visiting Scientists, Collaborative Programs with Japan, Europe, Russia and China

- Recognition:

Premier University Program in the World (Academic Program and Research); Several Prestigious Awards -- ANS Outstanding Achievement Award, DOE Distinguished Associate Award, Japanese Atomic Energy Society Distinguished Professor --

- Responsibility:

- Responsible for US DOE Program Direction and International Interactions on Fusion Nuclear Technology
- Member of US Steering Committee for ITER
- Lead US Person for VNS, Blanket, Neutronics
- IEA Chairperson for VNS
- Chairperson, International Standing Committee on FNT

## World Fusion Program Highlights

- Key Element is ITER  
International Thermonuclear Experimental Reactor
  - ITER is an International Project Among EC, Japan, USA, Russia
  - Present Phase of ITER:
    - Engineering Design Activity (EDA)
    - \$800M of R&D Over 5 Year Period
    - 3 Design Centers (San Diego, Naka, Garching)
  - ITER Capital Cost: ~ \$7B
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- UCLA Study (FINESSE) Shows a Need for Another Fusion Facility for Engineering Development; Called VNS (Volumetric Neutron Source)
- VNS is Now Accepted Worldwide in Terms of Technical Need
- Near Term Effort: Start International Study on VNS (UCLA Will Play a Major Role)
- Abdou Named by US DOE as the Lead US Person

## California Interests

- Major Initiative for Siting ITER or VNS in California (e.g. George Airforce Base)
  
- California Aerospace Industry is Particularly Interested in Siting VNS in California
  - Effort to Secure Non-DOE Funds
  
  - Nunn-Logan Defense Conversion Funds
  
  - State Competitiveness Funds (Through Department of Commerce)
  
  - November Conference on Technology in California: Fusion and VNS

## Local Fusion Program and Issues at UCLA

- IPFR was Established Several Years Ago (Total Extramural Funding ~ \$10M/yr.)
  
- Construction of a New Building on the "West Campus" has Been Approved
  - About \$40M
  - Uses Overhead Money
  
- Issues:
  - Interaction Between the ORU (IPFR) and Academic Units (Departments)
  - Two Senior Faculty are Leaving UCLA; a Third Faculty Member is Retiring
  - Is There a Commitment to Fusion at UCLA? (Hiring New Faculty, Resources, etc.)