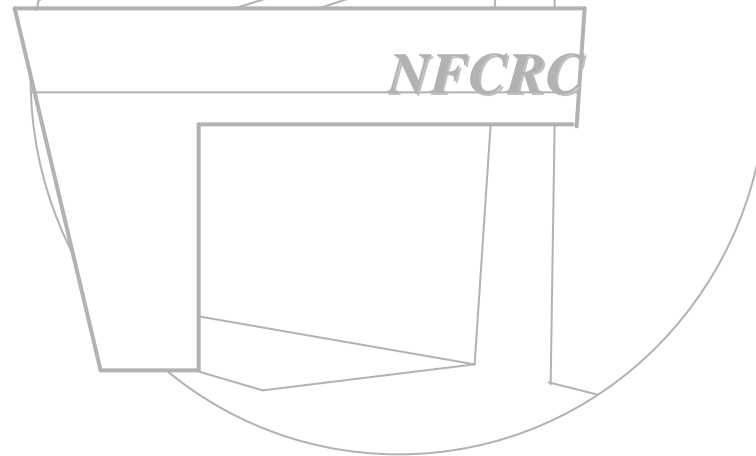


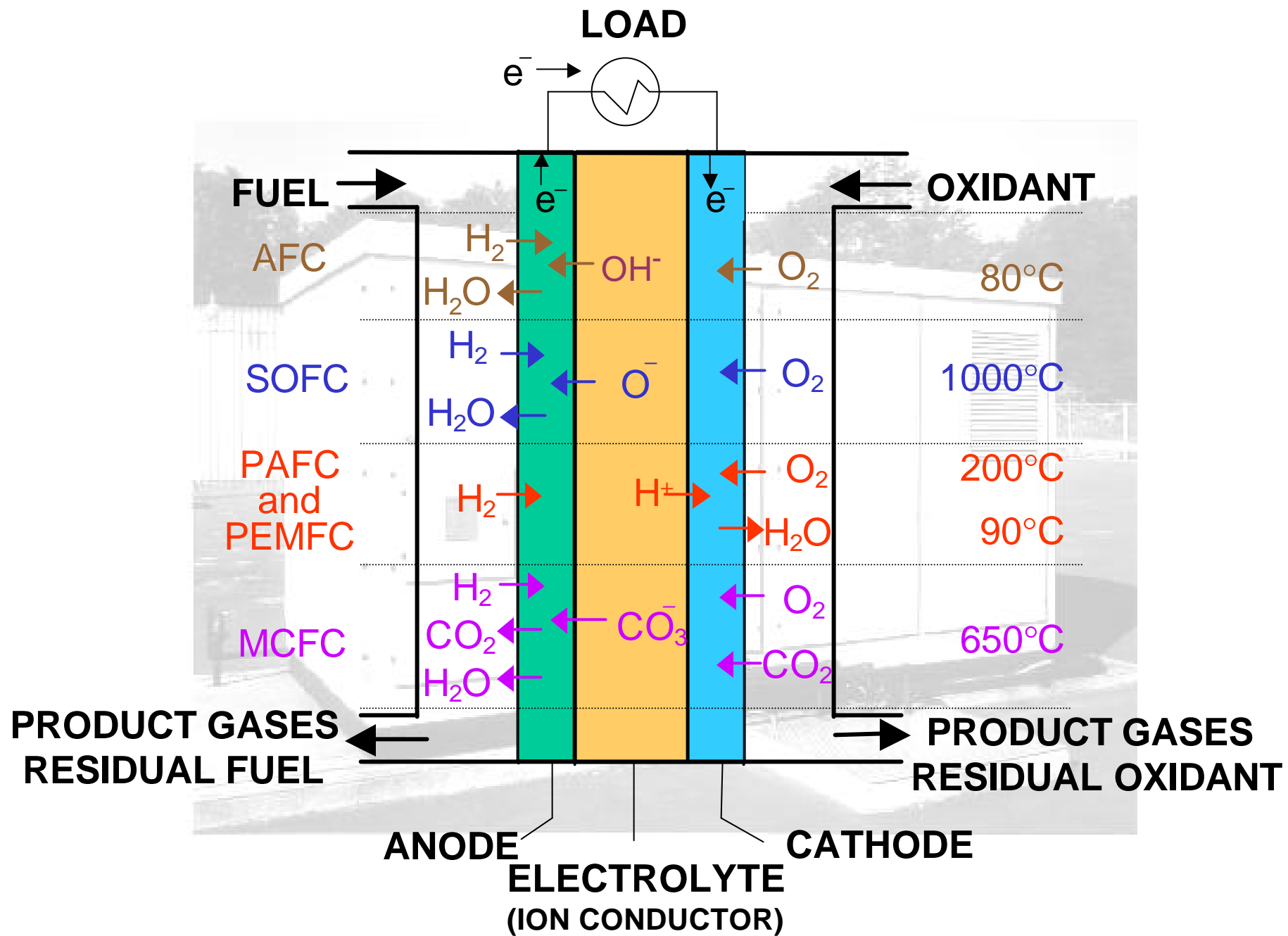
**UNIVERSITIES FOR FUEL CELLS  
WORKSHOP  
“POWER ELECTRONICS”**



**AUGUST 8-9, 2002**

**NATIONAL FUEL CELL RESEARCH CENTER**





# CHARACTERISTICS

- **ACOUSTIC EMISSION**
  - HMMMMMMMM
- **POLLUTANT EMISSION**
  - ULTRA LOW (“VIRTUALLY ZERO”)
  - TENTHS PPM NO<sub>x</sub>
- **ELECTRIC EFFICIENCY**
  - A MAJOR ATTRIBUTE
  - 30-100% HIGHER THAN SIMILAR SIZE COMBUSTION ENGINES
- **RELIABILITY and MAINTAINABILITY**
  - POTENTIALLY HIGH
  - NO MOVING PARTS

## **CURRENT STATUS**

- **EMERGING INTO THE MARKET**
  - DEREGULATION
  - ENVIRONMENTAL PRESSURES
  - CALIFORNIA STATIONARY FUEL CELL COLLABORATIVE
- **INVENTED IN 1839**
- **LITTLE UNIVERSITY RESEARCH TO DATE**
- **MAJOR MARKET HURDLES**
- **MAJOR TECHNOLOGY HURDLES**
- **LARGE EDUCATED WORKFORCE NEEDED**
- **FERTILE GROUND FOR UNIVERSITY RESEARCH**

***REMARKABLE***

## “UNIVERSITIES FOR FUEL CELLS”

- **NFCRC OUTREACH INITIATIVE**
- **SUPPORTED BY DOE, DOD**
- **APPROACH**

### **1) COMMUNICATION**

- IDENTIFY SIX FUEL CELL “COMPONENT” AREAS

***MATERIALS, POWER ELECTRONICS, CONTROLS,  
FUEL REFORMATION, INFORMATION TECHNOLOGY,  
SYSTEMS ANALYSES***

- FORM UNIVERSITY GROUP AROUND EACH AREA
- HOST ANNUAL WORKSHOP FOR EACH AREA
- INTERFACE TO FUNDING AGENCIES
- INPUT TO AGENCY PROGRAM PLANNING

### **2) VISIBILITY**

- WEB LINKS

# POWER ELECTRONICS FOR FUEL CELLS WORKSHOP

- **THURSDAY**

- **BACKGROUND**

- **PRESENTATIONS FROM UNIVERSITY PARTICIPANTS**

- **GOVERNMENT PRESENTATIONS**

- **FRIDAY**

- **BREAK-OUT SESSIONS**

- **MISSION, FUTURE ACTIVITIES,.....**