MAPPING
Physical Sciences Research to Space Technology Roadmaps

- TA02: In-Space Propulsion Systems*
  - Propellant Storage, Transfer & Gauging Liquid
    - Zero Boiloff: ZBOT > ZBOT-2 > ZBOT-3, (TSES – 2***)
    - Fluid Management: CFE > CFE-2, CCF, (AP2)
- TA03: Space Power & Energy Storage
  - Power Generation: FBCE (AP1)
- TA05: Communication and Navigation: ACES (FP -2)
- TA06: Human Health, Life Support and Habitation Systems
  - Environmental Control and Life Support Systems and Habitation Systems
    - Air Revitalization, and Water Recovery & Management: PBRE > PBRE-A** > PBRR** (TSES- 6)
      - Liquid-Gas Phase Separation: CFE-2, TFPSE (AP1)
    - Waste Management: SCWM > SCWM-2 > SCWO** (TSES-6)
  - Environmental Monitoring, Safety and Emergency Response
    - Fire Prevention, Detection and Suppression
      - Materials Flammability: BASS-2 > SoFIE > MWT-FS** (NASA STD 6001 Test 1) (AP6, TSES – 8)
- TA12: Materials, Structures, Mechanical Systems and Manufacturing: FAMIS, MVCS (AP10)
- TA14: Thermal Management Systems
  - Heat Pipes: CVB > CVB-2 > CVB-3** > HPE-L** (AP1)
  - Two-Phase Pumped Loop Systems: FBCE, MFHT, EHD (AP1, TSES - 1)

* OCT Space Technology Roadmaps, 2014 (blue), ** proposed experiment, ***Decadal Survey Identifier

Experiment Acronyms

ACES	Atomic Clock Ensemble in Space
BASS	Burning and Suppression of Solids
CFE	Capillary Flow Experiment
CCF	Capillary Channel Flow
CVB	Constrained Vapor Bubble
EHD	ElectroHydroDynamic flow experiment
HPE-L	Heat Pipe Experiment - Loop
FAMIS	Formulation of Amorphous Metals in Space
FBCE	Flow Boiling and Condensation Experiment
MsFHT	Multiphase Flow And Heat Transfer Experiment
MVCS	Morphological study in Variable Cross Section
MWT-FS	Microgravity Wind Tunnel - Fire Safety
PBRE	Packed Bed Reactor Experiment
PBRE-A	Packed Bed Reactor Experiment - Applied
PBRR	Packed Bed Reaction Rate Experiment
SoFIE	Solid Fuel Ignition and Extinction
TPFSE	Two Phase Flow Separator Experiment
ZBOT	Zero Boil-off Tank Experiment