High-Temperature Molten-Salt Storage for Brayton Cycles

Scientific Achievement:
Design and develop a research (laboratory) molten-salt-loop system for storage for Brayton cycles in concentrating solar power.

Significance and Impact:
Research system
• Provides for assessing the feasibility of the thermocline concept
• Visualizes the flow pattern and temperature distribution profile of the molten salt
• Checks the thermal stability of the loop under normal operating conditions
• Identifies the thermal abnormalities within the loop

Research Details:
• Thermal stratification is affected by a number of factors:
  - Mixing due to the inlet and outlet streams and tank configuration
  - Initial melt temperature profile of the salt
• The height-to-length ratio (AR) influences stratification, which may be enhanced by the proper design of tank parameters.

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