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In-phase thermomechanical fatigue damage evolution of long fiber-reinforced ceramic-matrix composites using fatigue hysteresis-based damage parameters

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Highlights

- The in-phase TMF damage evolution of CMCs has been investigated, considering the coupling effects of TMF loading stress level, thermal cyclic temperature and applied cycles.
- The damage accumulation processes subjected to in-phase TMF for different fibers volume fraction, peak stress, matrix crack spacing, interface properties and thermal cyclic temperature range have been analyzed. The distinction of the damage evolution between the in-phase TMF and isothermal fatigue (IF) loading at the same applied stress have been analyzed.
- The damage evolution of cross-ply CMCs subjected to the in-phase TMF and IF loading have been predicted.

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