



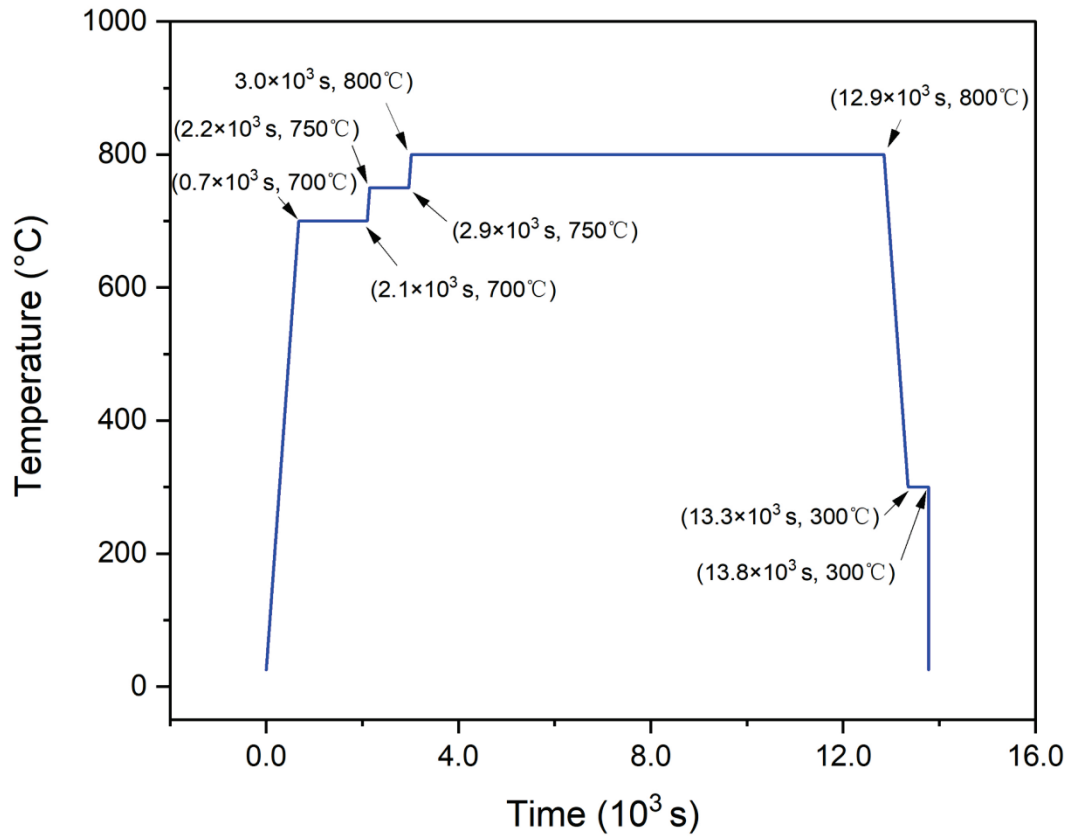
FOUNDATIONS  
ADVANCES

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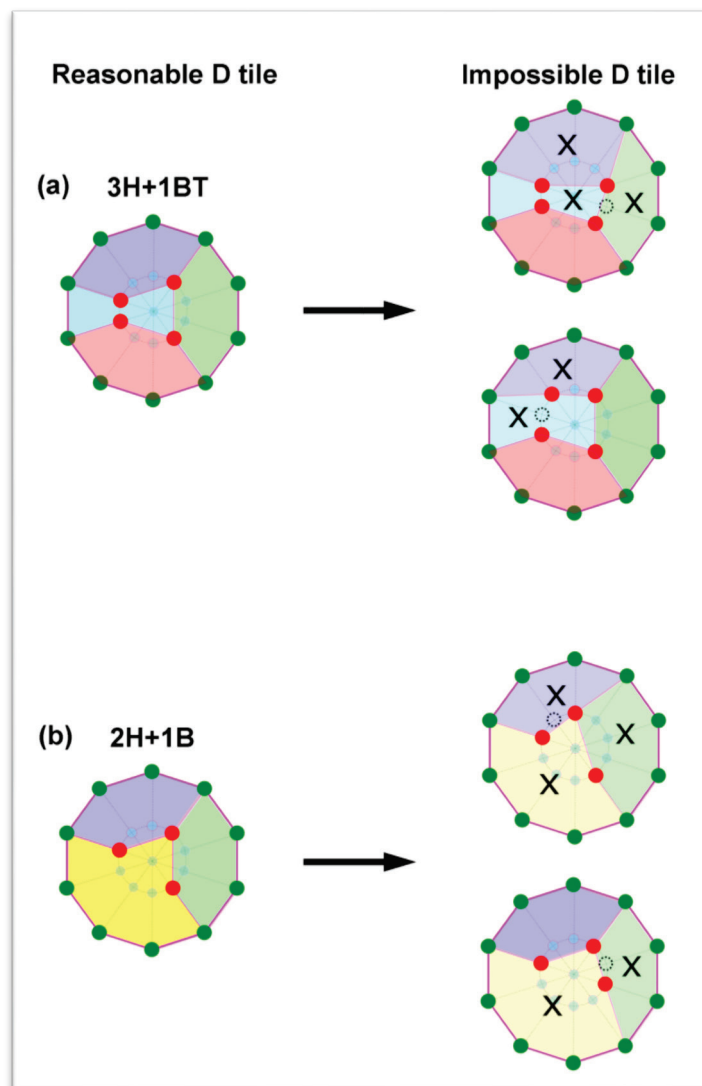
**Supporting information for article:**

**Experimental observation of carousel-like phason flips in  
the decagonal quasicrystal Al<sub>60</sub>Cr<sub>20</sub>Fe<sub>10</sub>Si<sub>10</sub>**

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**Supplementary Fig. 1| Sketch map of the heating history of the DQC in the transmission electron microscope. Time and temperature are marked at inflection points.**



**Supplementary Fig. 2 | Schematics of impossible 2.0 nm D clusters when the two occupied positions are separated by only one empty position on the 0.77 nm decagon.** (a) From  $D_{3H+1BT}$  cluster; (b) From  $D_{2H+1B}$  cluster. Occupied positions are denoted by solid red spots. One empty position between two nearby occupied positions is indicated by one dotted black circle. The two occupied positions with the interval of one empty position on the 0.77 nm D cluster are forbidden geometrically because it brings a geometric conflict for the generation of the observed structural clusters of the DQC. Impossible structural blocks are marked by black cross in right column.