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## **Anomalous relaxation features of hyperquenched vitreous silica**

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Several striking anomalies of enthalpy relaxation in vitreous silica (the strongest system known so far) have been observed by means of the hyperquench-anneal-calorimetric scan strategy. The hyperquenched vitreous silica only exhibits a symmetrical peak in the excessive heat capacity ( $C_{p,exc}=C_{p,scan2}-C_{p,scan1}$ ) versus temperature ( $T$ ) curve. With the degree of annealing below  $T_g$ , the peak becomes smaller, but does not shift on the temperature axis. This indicates a strong coupling in the relaxation of structural domains in silica. In case of the hyperquenched fragile glasses, the low temperature cutoff of the  $C_{p,exc} \sim T$  peak shifts to higher temperature with the degree of annealing. This indicates that a decoupled, successive relaxation of structural domains occurs. The anomalies of enthalpy relaxation in vitreous silica are discussed in terms of the potential energy landscape approach, the glass structure theory, and the relative contributions from primary and secondary relaxations.