

## Application of Genetic Programming for Evolution of Glass-Forming Ability Parameter

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**Abstract :** A few glass forming ability expressions in terms of characteristic temperatures have been proposed in the literature. Attempts have been made to correlate the expression with the critical diameter of the bulk metallic glass composition. However, with the advent of new alloys, many exceptions have been noted and reported. In the present approach, a genetic programming based code which generates an expression in terms of input variables, i.e., three characteristic temperatures viz. glass transition temperature ( $T_g$ ), onset crystallization temperature ( $T_x$ ) and offset temperature of melting ( $T_l$ ) with maximum correlation with a critical diameter ( $D_{max}$ ). The expression evolved shows improved correlation with the critical diameter. In addition, the expression can be explained on the basis of time-temperature transformation curve.

**Keywords :** glass forming ability, genetic programming, bulk metallic glass, critical diameter

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