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**Characteristics of Johari–Goldstein relaxations in bulk metallic glasses** JICHAO QIAO, School of Mechanics, Civil Engineering and Architecture, Northwestern Polytechnical University, P.R. China, RICCARDO CASALINI, Chemistry Division, Naval Research Laboratory, USA, JEAN-MARC PELLETIER, INSA-Lyon, France, HIDEMI KATO, Institute for Materials Research, Tohoku University, Japan, YAO YAO, School of Mechanics, Civil Engineering and Architecture, Northwestern Polytechnical University, P.R. China, YAO'S GROUP TEAM, CHEMISTRY DIVISION, NAVAL RESEARCH LABORATORY TEAM, PVMH, MATEIS, INSA DE LYON TEAM, KATO'S LAB TEAM — The dynamics of Pd-based metallic glasses was studied by mechanical spectroscopy and modulated differential scanning calorimetry. The results show the change in composition has a significant effect on the $\alpha$ relaxation dynamics. All Pd-based metallic glasses have similar fragilities, $59 < m < 67$, and Kohlrausch stretched exponents, $0.59 < \beta_{KWW} < 0.60$. The values of $m$ and $\beta_{KWW}$ correlate well with the general relation proposed by Böhmer et al. for other glassy materials and the substitution of the Ni with Cu induced a large change in the time constant of the $\beta$ relaxation, $\tau_\beta$. The activation energy, $U_\beta$, of the $\beta$ relaxation was generally independent of chemical composition. In all cases, $25 < U_\beta/RT < 28$, the range shows good agreement compared with the results of other glass formers. From the heat capacity and mechanical loss, the number of dynamically correlated units, $Nc$ were obtained; significantly larger $Nc$ values for these metallic glasses were observed compared with glassy materials.

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