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**Ben Vadala-Roth\***, benLvr@live.unc.edu, and **Boyce E Griffith**. *Effect of fiber dispersion in fluid-structure interaction models of bicuspid aortic heart valves.*

The aortic valve in the human heart usually consists of three symmetric leaflets. One of the most common cardiac defects is bicuspid aortic valves (BAV), in which two leaflets have fused together. One of the two remaining leaflets closely resembles one from a typical trileaflet valve, whereas the other consists of two cusps and a fibrous ridge-like region, called a raphe, in between the cusps. Many mathematical models of the dynamics BAV's, use the same constitutive laws and material parameters of normal tricuspid valves. However, it has been reported that the underlying fiber architecture of BAV's are less organized near the raphe region. We study the effect of varying levels of fiber dispersion in an invariant based material law for the solid mechanical behavior of a BAV leaflet. This material law is used to define the structural response in an immersed boundary (IB) simulation of fluid-structure interaction. (Received January 21, 2020)