

Bond graph modeling and simulation of left ventricle of human heart

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Abstract: To ensure proper functioning of the left ventricle of Human Heart, it is very important to know about its functioning in detail and how other muscles of heart are affecting it. Bond graphs are ideally suited to the modeling of nonlinear, multi-energy systems like left ventricle. The bond graph model for the anatomy of blood around the left ventricle is studied in detail and using this model, suitable results were obtained for different cases like varying after-load conditions. Various parameters and variables were analysed with respect to volume of blood in Left Ventricle and pressure inside it. The results obtained are clearly depicting the mechanism of the left ventricle and looked very promising. A careful study about the constant values has really made the results equivalent to actual results. The model has therefore cast a significant influence over the prediction of performance of left ventricle.

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