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(54) Title: RHEOLOGY-BASED MODELING TO IDENTIFY THE MOLECULAR WEIGHT DISTRIBUTION OF LINEAR POLYMERS

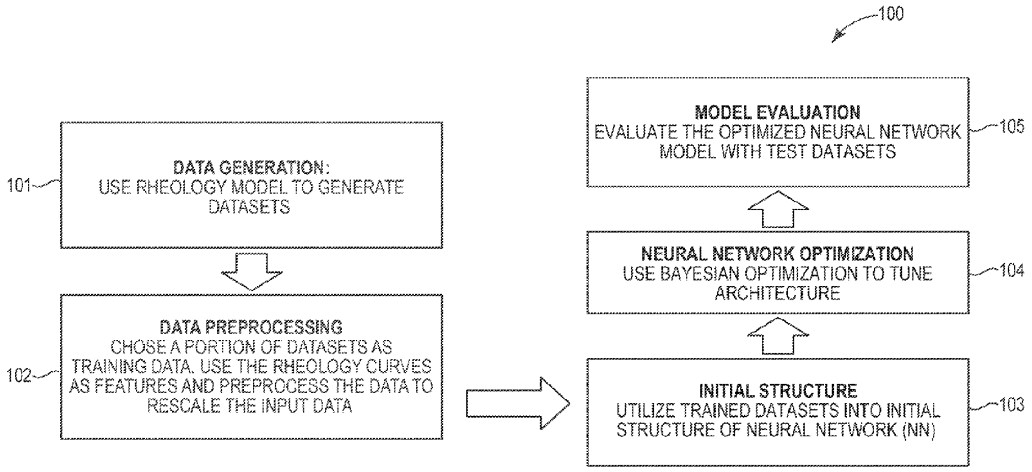

Fig. 1

(57) Abstract: In at least one example, a method for rheology-based modeling to identify the molecular weight distribution of linear polymers includes generating a data set for a plurality of polymer ensembles, where each of the plurality of polymer ensembles comprise a respective plurality of polymers within a defined range of molecular weights, generating a respective rheology curve for each of the plurality of polymer ensembles, where the respective rheology curve comprises a plurality of input features for a corresponding polymer ensemble, rescaling a modulus value of the respective rheology curves for each of the plurality of input features to generate a plurality of output features, and training a machine learning model to determine a molecular weight distribution from a rheology measurement of an unknown polymer sample utilizing the plurality of output features with corresponding values from the data set.

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