Construction of initial data with monotonous Geroch mass

Consider a smooth three-dimensional manifold $\Sigma$ that is smoothly foliated by topological two-spheres. Choose a smooth flow such that the integral curves of it intersect the leaves of the foliation precisely once. Assume that a smooth distribution of induced two-metrics on the leaves of the foliation is also chosen such that the area of the leaves is non-decreasing. It is shown then that large variety of initial data configurations can be constructed on $\Sigma$ such that the prescribed foliation gets to be an inverse mean curvature foliation, the prescribed flow turns out to be a generalized inverse mean curvature flow and the Geroch mass—defined with respect to the foliation—is guaranteed to be non-decreasing.