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Quasi-triangular Hom-Lie bialgebras.

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Let \((L, [\cdot, \cdot], \alpha)\) be a multiplicative Hom-Lie algebra over a field \(k\) of characteristic zero, consisting of a vector space \(L\) over \(k\), a \(k\)-linear map \([\cdot, \cdot] : L \otimes L \to L\), and a \(k\)-linear endomorphism \(\alpha : L \to L\) such that \(\alpha([x, y]) = [\alpha(x), \alpha(y)]\) for all \(x, y \in L\). In the paper under review the authors give characterisations of boundary and quasi-triangular Hom-Lie bialgebra structures on a given involutive multiplicative Hom-Lie algebra in terms of the classical Hom-Yang-Baxter equation or in terms of certain Hom-Lie (co)algebra morphisms. Moreover, the authors construct for every finite dimensional involutive multiplicative Hom-Lie bialgebra \(L\) a quasi-triangular involutive multiplicative Hom-Lie bialgebra \(D(L)\), the so-called double Hom-Lie bialgebra, and its dual \(D(L)^*\), the so-called co-double Hom-Lie bialgebra, which is a co-quasi-triangular Hom-Lie bialgebra.