**Experimental section**

**Material preparation**

We prepared Al96-xNi1Co1Fe1Cr1Agx (X = 0.1, 0.3, 0.5, at. %) as precursor alloys by a melt-spinning method, and Al97Ag3 was also prepared for reference. All the precursor alloys were prepared by melting pure metals (>99.9 wt. %) using an induction-melting furnace under Ar protection. Then the precursor alloys were put in a quartz tube, melted again and injected onto a rotating copper roller to obtain thin alloy strips. The tangential speed of the roller is 30 m s-1 and the injection gas pressure is 300 Pa.