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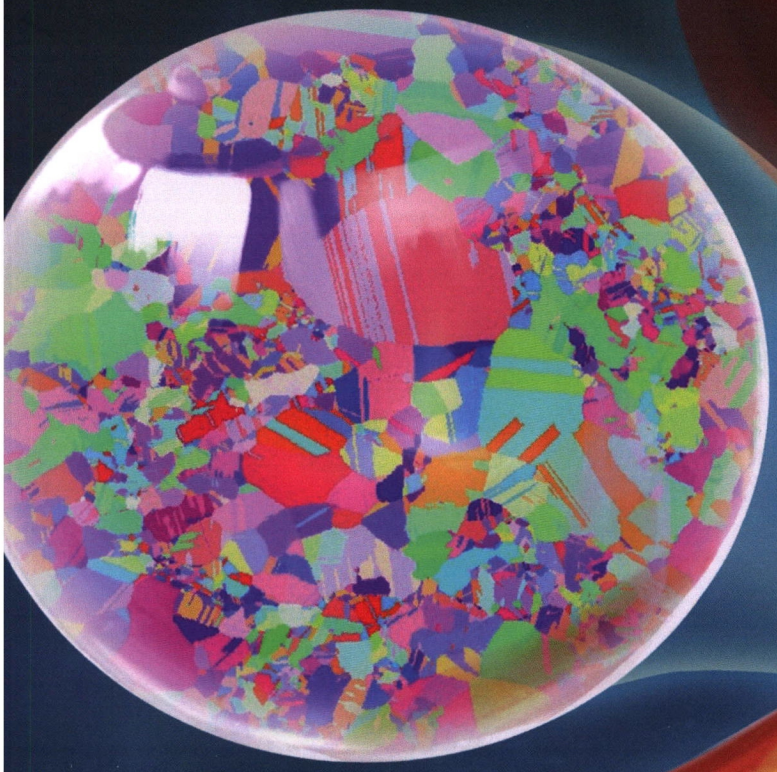

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RARE METALS (Monthly)

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Cover story

(Cheng-Lin Li* , Seong-Woo Choi, Jeong Mok Oh, Jae-Keun Hong, Jong-Taek Yeom, Joo-Hee Kang, Qing-Song Mei, Chan Hee Park*, pp. 20-30)

Strong and ductile Co-Cr alloy for vascular stents

Co-Cr alloy (L-605) is one of the most promising metals to manufacture balloon-expandable stents. Unlike conventional structural applications, materials for balloon-expandable stents prefer high ductility and high tensile strength, but low yield strength. However, L-605 alloy also has a strength–ductility trade-off, namely, it can be processed to reach high strength, but at a drastic loss of ductility. Particularly, yield strength and tensile strength often increase simultaneously. New engineering solutions are required to overcome these issues for L-605 stents. In this issue, Li et al. demonstrated that a superior combination of high tensile strength (>1200 MPa) and low yield strength (<630 MPa), and high ductility (>65%) can be achieved through introducing bimodal grain structure design in this alloy. This effort can contribute to manufacturing ultra-thin strong and ductile vascular stents, hence improving flexibility, deliverability, and access to small vessels.

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