## Supplementary Information

**Rapid design of secondary deformation-aging parameters for ultra-low Co content Cu–Ni–Co–Si–X alloy via Bayesian optimization machine learning**

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Table S1. Sample dataset for machine learning training and modeling

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Deformation / % | Aging temperature / °C | Aging time / h | EC / (% IACS) | Hardness, HV |
| 0 | 425 | 1 | 41.4 | 264 |
| 0 | 425 | 2 | 42.3 | 264 |
| 0 | 425 | 3 | 42.4 | 263 |
| 0 | 450 | 1 | 40.4 | 264 |
| 0 | 450 | 2 | 41.1 | 263 |
| 0 | 450 | 3 | 41.9 | 261 |
| 0 | 475 | 1 | 40.3 | 264 |
| 0 | 475 | 2 | 41.5 | 261 |
| 0 | 475 | 3 | 42.9 | 256 |
| 50 | 425 | 1 | 38.1 | 270 |
| 50 | 425 | 2 | 39.1 | 275 |
| 50 | 425 | 3 | 40.6 | 283 |
| 50 | 450 | 1 | 39.4 | 269 |
| 50 | 450 | 2 | 41.1 | 273 |
| 50 | 450 | 3 | 43.1 | 275 |
| 50 | 475 | 1 | 41.7 | 264 |
| 50 | 475 | 2 | 44.5 | 261 |
| 50 | 475 | 3 | 46.0 | 258 |
| 70 | 425 | 1 | 39.5 | 285 |
| 70 | 425 | 2 | 41.6 | 280 |
| 70 | 425 | 3 | 42.8 | 274 |
| 70 | 450 | 1 | 41.8 | 280 |
| 70 | 450 | 2 | 42.5 | 274 |
| 70 | 450 | 3 | 46.7 | 264 |
| 70 | 475 | 1 | 42.5 | 268 |
| 70 | 475 | 2 | 45.1 | 260 |
| 70 | 475 | 3 | 47.3 | 245 |