

## Support Information

# An improved high-throughput data processing based on combinatorial materials chip approach for rapid construction of Fe-Cr-Ni composition-phase map

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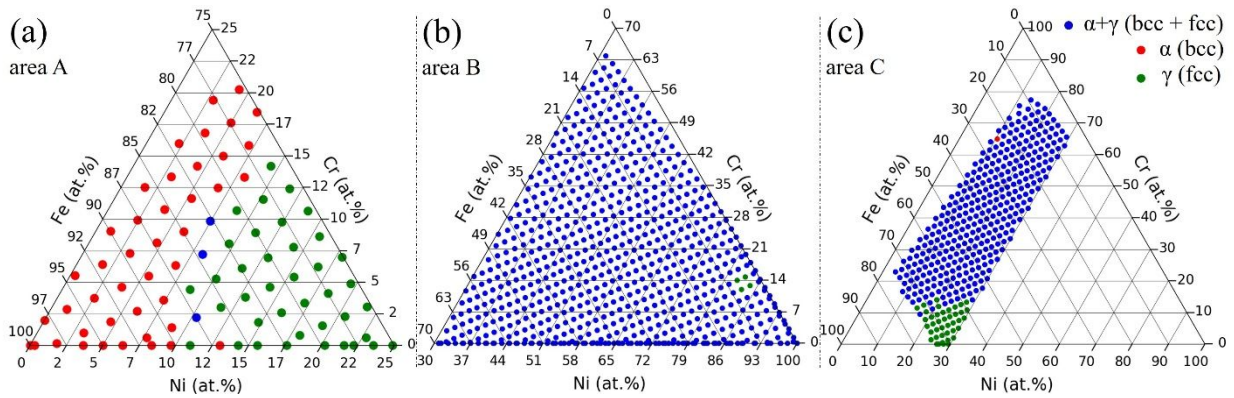
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Vectors were directly converted from the XRD patterns, and then taken into hierarchy clustering analysis based on COS. The clustering results are shown in Figures S1 a-c. Compared to the manual results (Figures 5a-c), only the result of area A (Figure S1 a) achieves a correct rate of 70.11% (61/87), and the results of the other areas (Figures S1 b and c) have obvious deviations and unsatisfying correct rates.



**Figure S1.** (a), (b), and (c) are the automatically constructed results of the areas A, B, and C by HCA based on COS and vectors that directly converted from XRD patterns, respectively.