

University of Technology (UNITECH)

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Exchange Program Agreement

Basic parts (but not limited to these parts):

1. Collaborative Research Title

Growth Process Controlling of Carbides and the Methods for Reducing Carbides Growth Rate

2. Names of Principal Investigators of Both Parties

Tang Jiancheng, Tan Dunqiang, Li Mingxian Chesnokov Aleksey Viktorovich, Savin Valeriy Vasilyevich, Svetushkov Nikolay Nikolaevich

3. Research Plan, Division of Labor and Exchange Plan

Research Plan:

The exchanges and cooperation between the two institutions are expected to be carried out in the following three aspects: 1. Growth process controlling of the nano-carbides powders; 2. The research of methods of reducing the growth rate of carbide powders; 3. The preparation of nano-WC powders and nano-grained binderless tungsten carbide.

Division of labor:

Our staff will travel to the Korolyov University of Technology for academic exchanges, and Korolyov University of Technology will visit our school and related companies to provide technical guidance for the preparation of nano-WC powders and industrial applications of binderless tungsten carbide.

Exchange Plan:

- 1. From January to June 2020, three of us will go to Korolyov University of Technology for academic exchanges on the growth process controlling of the nano-carbides powders (WC and SiC).
- 2. From July to December 2020, Korolyov University of Technology will exchange with us for the next time. The exchange is based on the research of methods of reducing the growth rate of carbide powders
- 3. From January to June 2020, three of us will go to Korolyov University of Technology for academic exchanges. The content of the exchange is the mechanism of catalytic activation and nanoactivation effects inhibiting abnormal grain growth of WC grains during the sintering process.
- 4. From July to December 2021, two people from Korolyov University of Technology will come to our university to exchange ideas on the application of binderless tungsten carbide with high hardness and toughness in industrial field.

4. Ownership, Use and Transfer of the Intellectual Property

Clearly state who shall own the intellectual property and how to use or share it.

- 1. The patents, published papers and scientific and technological achievements jointly researched and developed by the two sides in scientific research cooperation are jointly owned by both institutions, each accounting for 50%.
- 2. For the joint results of both institutions, neither party may disclose information, technical details or technology transfer to third parties without the written permission of both parties.

5. Duration

January 2020 to December 2021

6. Legal Validity

Effective date: January 2020; Period: 2 years; Termination: December 2021

7. Signature by Principal Investigators of Both Parties, Date and Place

Chesnokov Korolev 18,06.2013 Tang Jiancheng Jan Dungiong 19.06.2019

Korolev 18,06.2013 Tan Dungiong 19.06.2019

Sverushkov M. M. Willes Korolev Thorig Mingxian Zhang Mingxian 19.06.2019 n