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Quantum hole super-compressibility and synthesis of new materials

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Abstract

- In laboratory conditions emission of high energy is detected from a quantum hole. The essence of the phenomenon lies in the creation of quantum hole during outflow from the dynamic emitter and because of this quantum hole super-compressibility is observed in the helical instability of the supersonic jet.

- The annual nozzle with a central cone is the dynamic emitter in which initially neutral gas is supplied. The gas adiabatically expands and its internal energy decreases.

- Such molecular interactions generate the quantum hole which in turn creates super-compressibility of plasma either in the vicinity of the outlet of the nozzle and in jets propagating over long distances without energetic losses and without disruption of the structure.

- High energy of plasma emitted from the structure can be considered as a new source of energy for synthesis of new materials.

Geometry of the dynamic emitter. Electromagnetic super-compressibility from quantum hole.

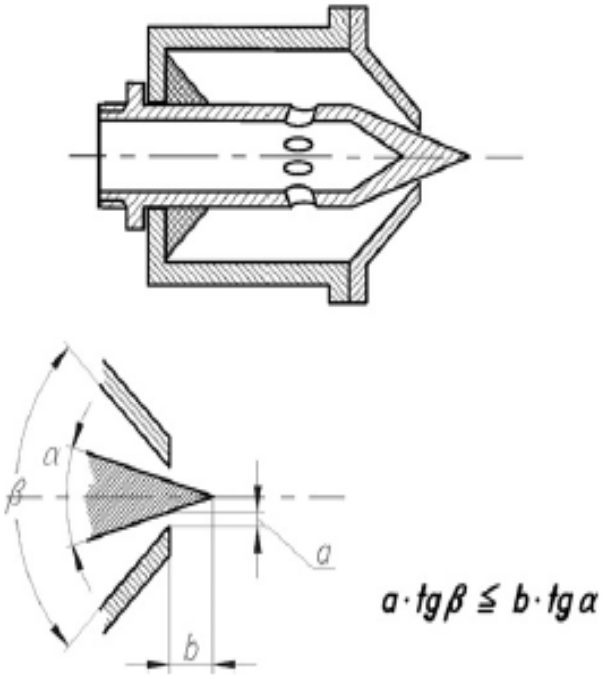


Fig.1. Scheme of dynamic emitter with central cone. Here *a* is gioco circolare, *b* is prominent part of cone, α – angle of central cone, *β* – angle of pre-chamber inner cone.

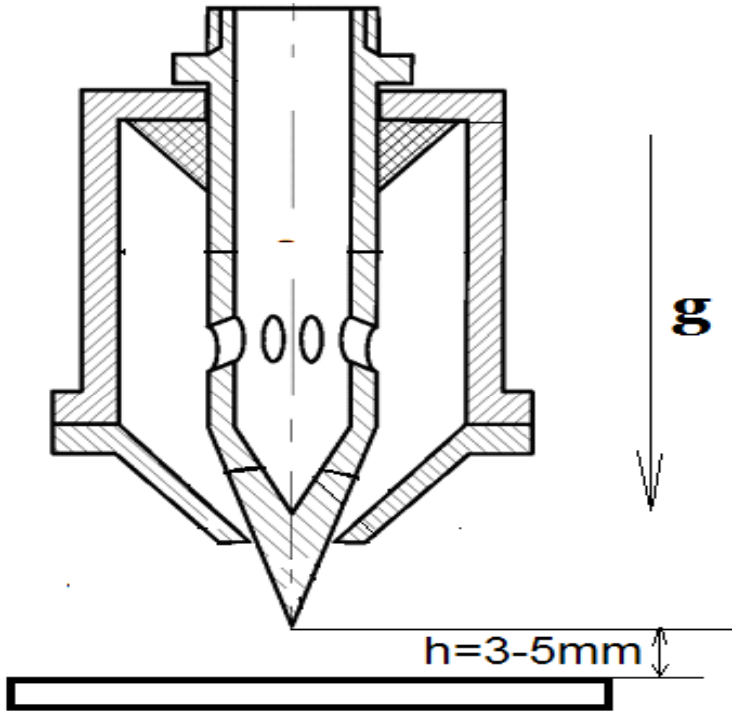
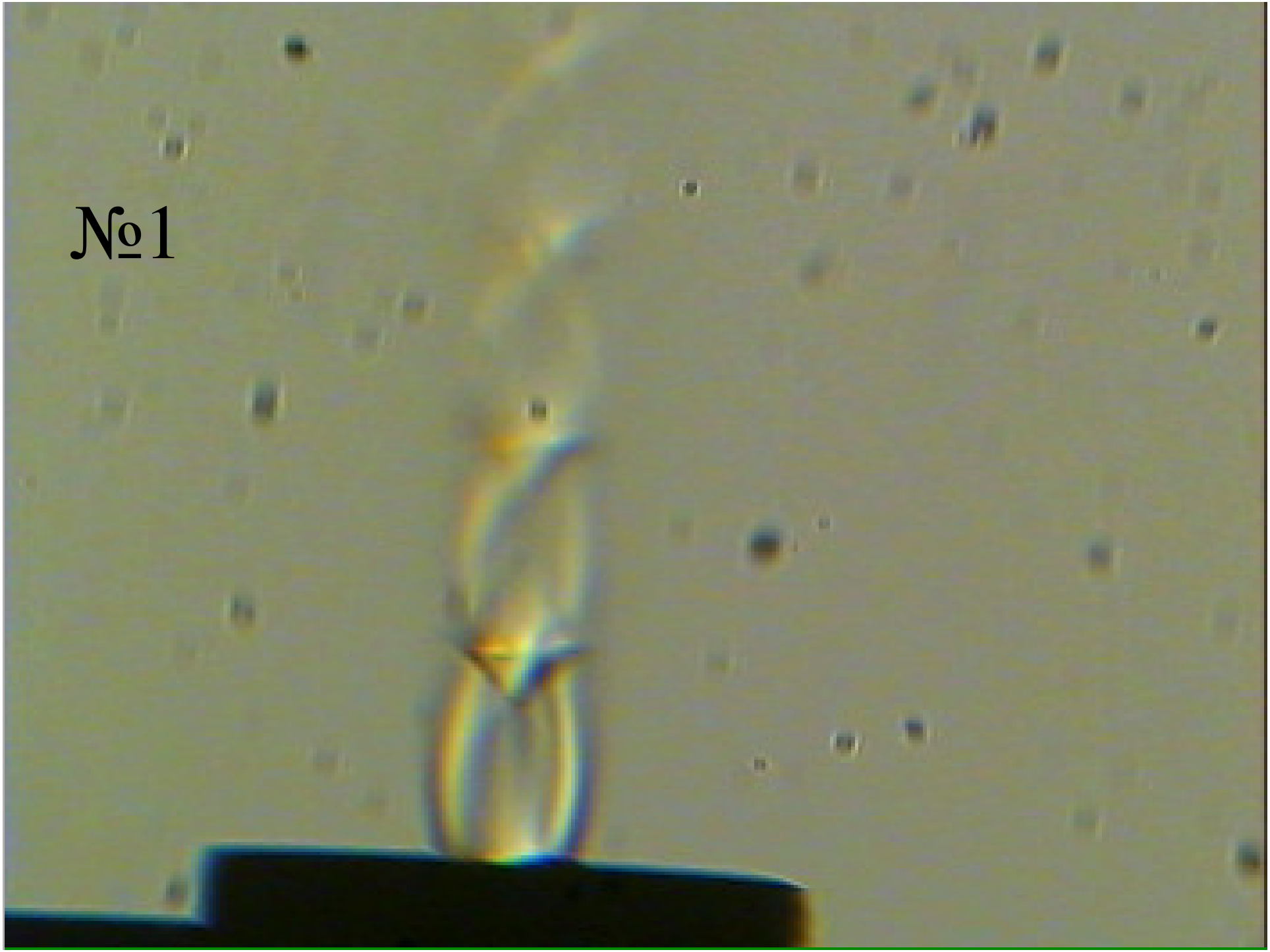
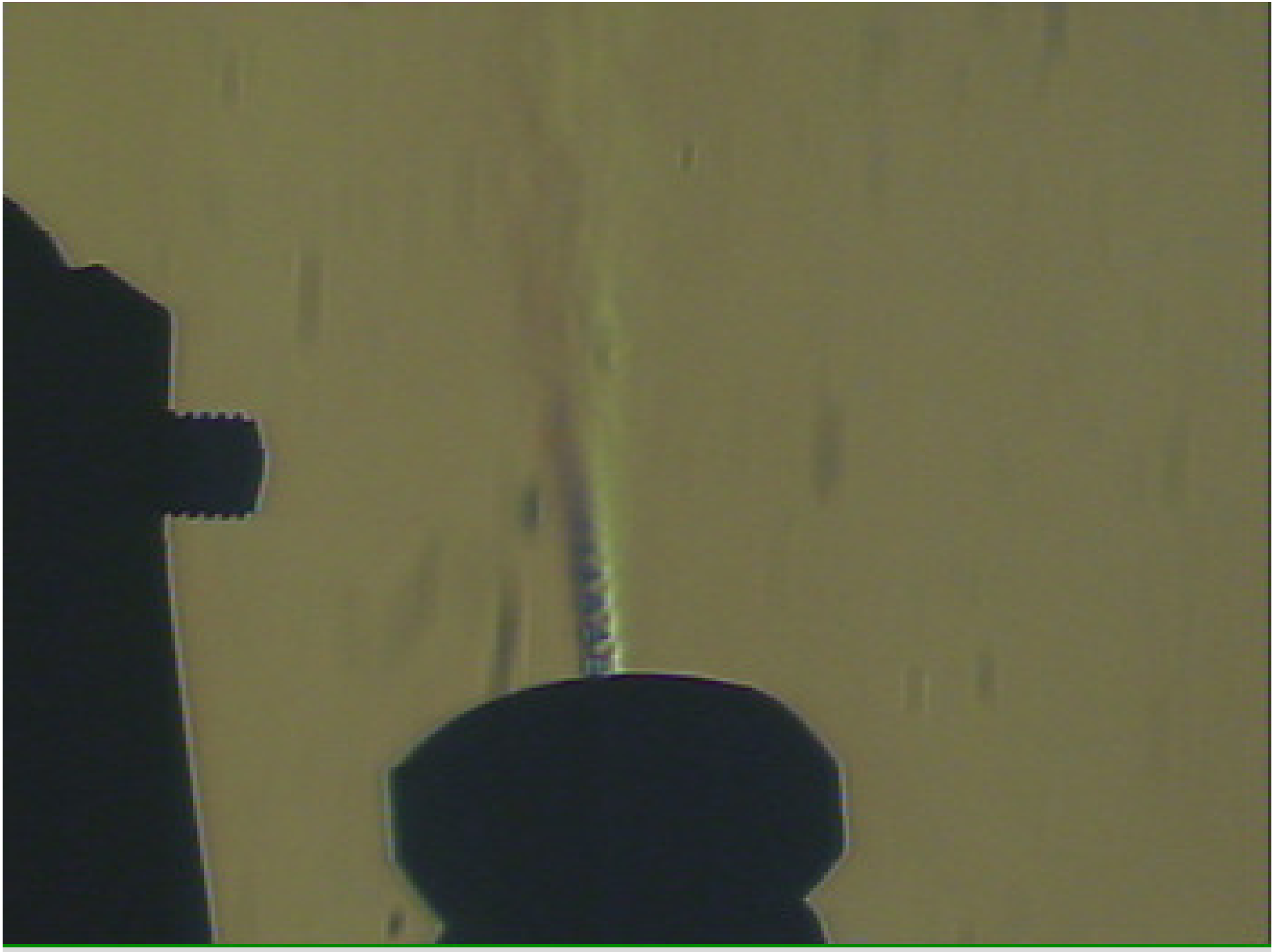


Fig.2. Experiments were carried out with the screens of two types: Screens were placed at a distance of 3-5 mm from the tip of the needle of the ring nozzle


№1



The Toepler visualization of quantum hole creation in spiral structures of supersonic jet.

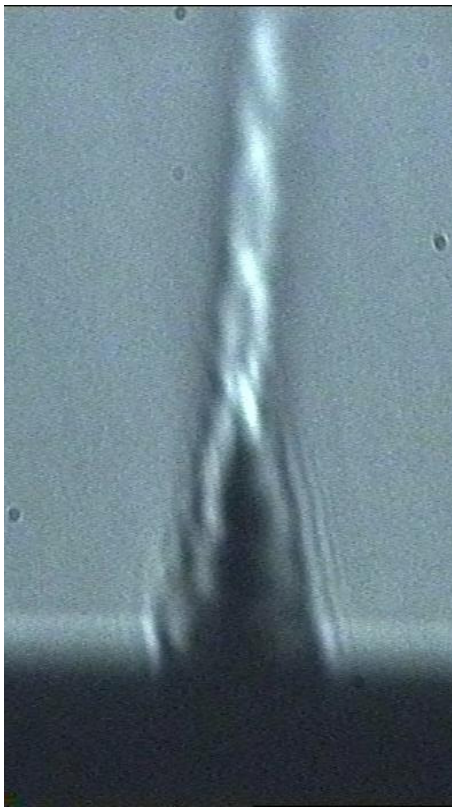


Fig. 3. Structure of supersonic jet when *b*=6 mm, annular nozzle diameter is 6 mm, slit *a* is 1 mm, pressure in pre-chamber is 0.6 MPa. Toepler method is used (provided in CIA of Motor Industry).

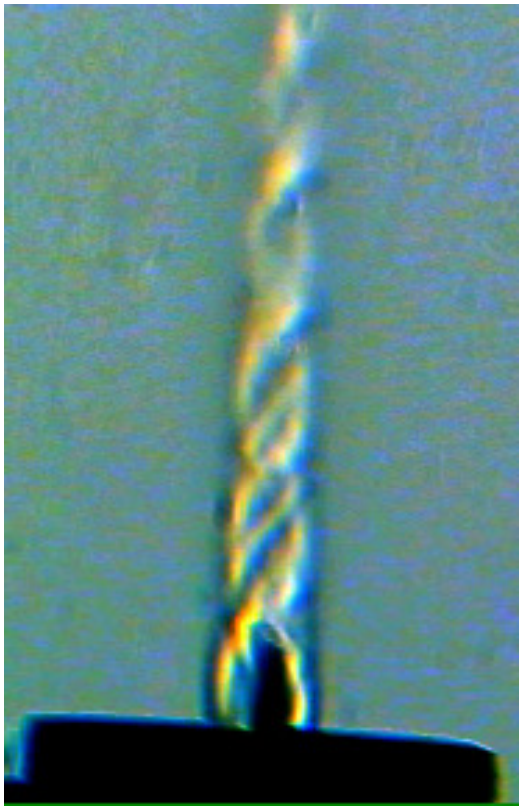


Fig. 4. Structure of supersonic jet when *b*=3 mm, annular nozzle diameter is 3 mm, slit *a* is 1 mm, pressure in pre-chamber is 0.6 MPa. Here Toepler method is used (provided in MSU SRI of Mechanics)

Laser visualization of quantum hole creation in spiral structures of supersonic jet.

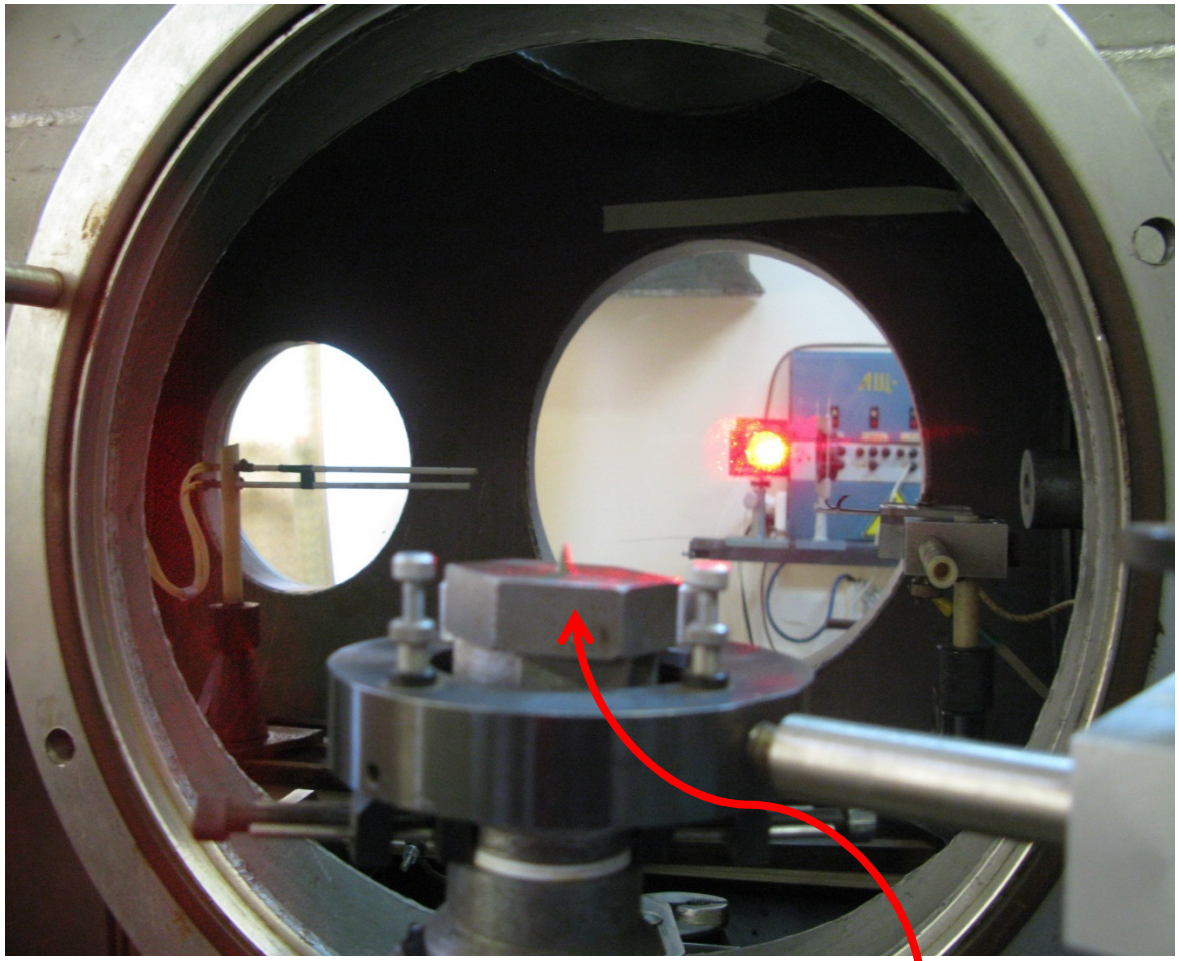
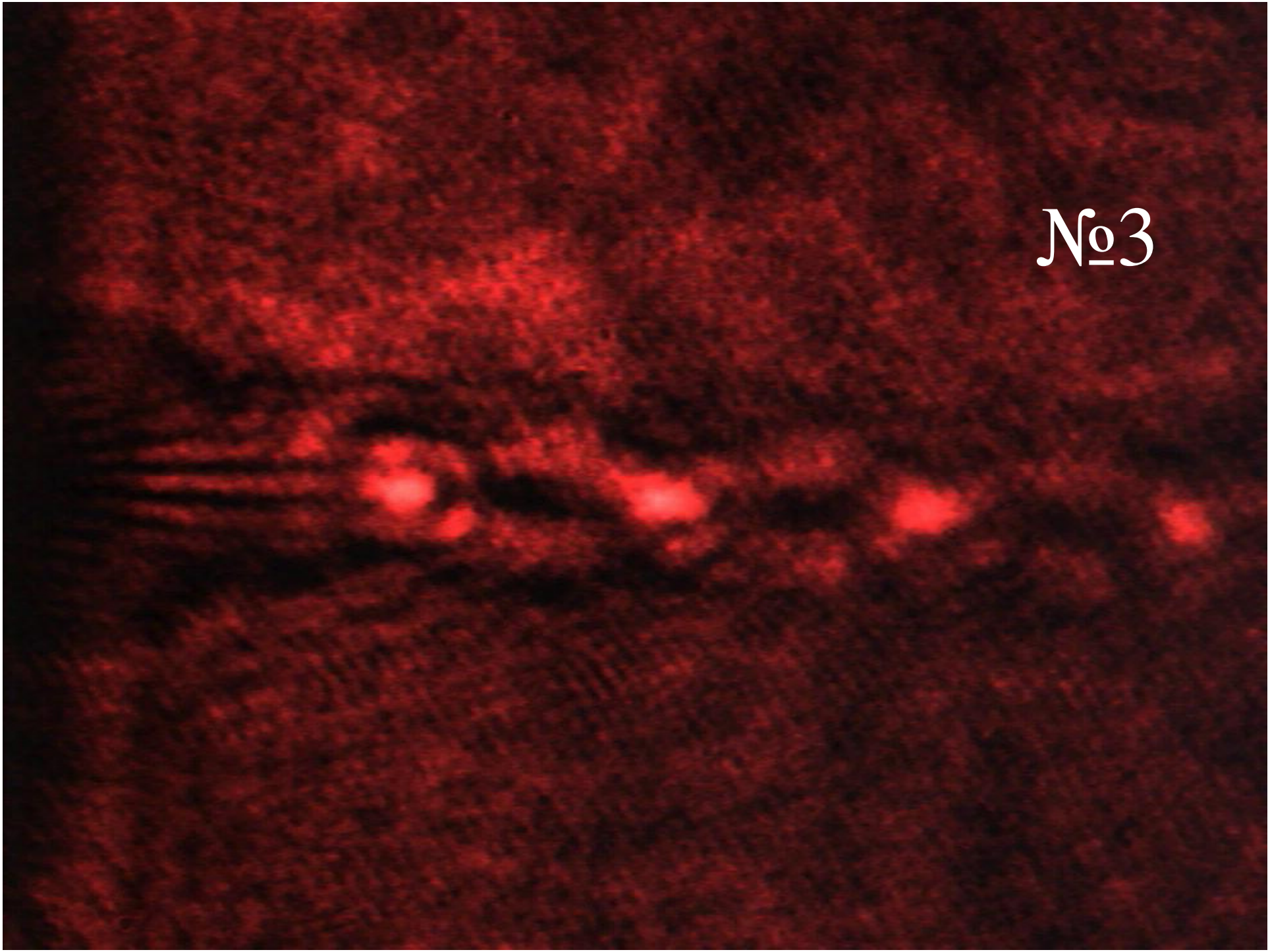


Fig. 5. Fragment of installation with dynamic emitter
(experiment was conducted in the Joint Institute of High Temperature of RAS).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Emission from quantum hole created by the dynamic emitter.

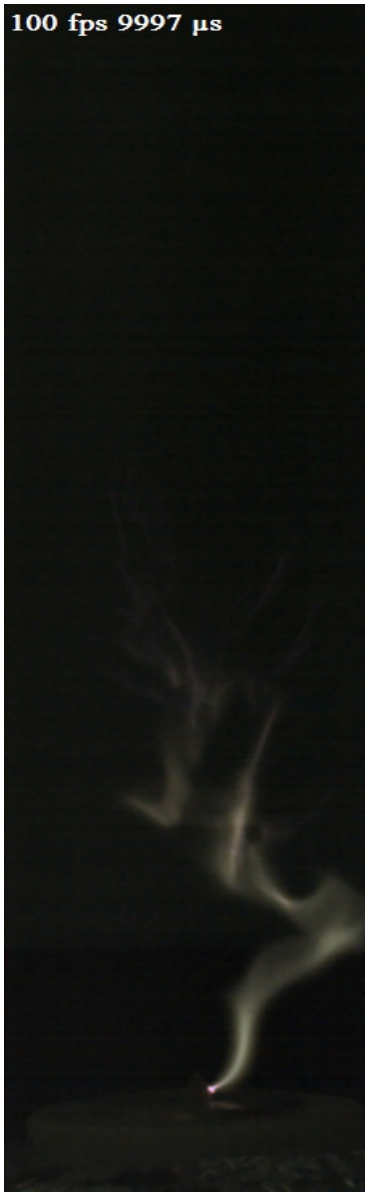

Fig. 6-7. HF field is applied to **central cone** of the dynamic emitter. Jet is blocked.

Quantum hole emission structure of high-energy is observed as glowing.

Left – 100 frames per second, exposure shooting is 9997 mcs

Right – 60 frames per second, exposure shooting is 15000 mcs

№4

Light emission of quantum hole created in spiral structures of supersonic jet.

Fig. 8. Antenna disposed on 10 cm **over top** of the flow of grounded nozzle. 1.4÷1.6 MHz was supplied on antenna. Pressure in pre-chamber is 0.6 MPa. Without gas flow – dark frame

Fig. 9. 1.4÷1.6 MHz HF field is applied **at the cone**. All other details of the dynamic emitter are dielectric. The pressure is as for Fig. 12.

Synthesis of new materials of new physical and chemical properties due to quantum hole and super-compressibility.

- Interaction of jet with the gold film and the formation of quantum holes;
- The structure of electromagnetic super-compressibility of the gold film;
- The synthesis of nano-crystals on substrate as a result of the phenomenon of super-compressibility;
- Synthesis of carbon from the gaseous helium due to electromagnetic super-compressibility in quantum hole;
- Synthesis of calcium from argon due to electromagnetic super-compressibility in quantum hole;

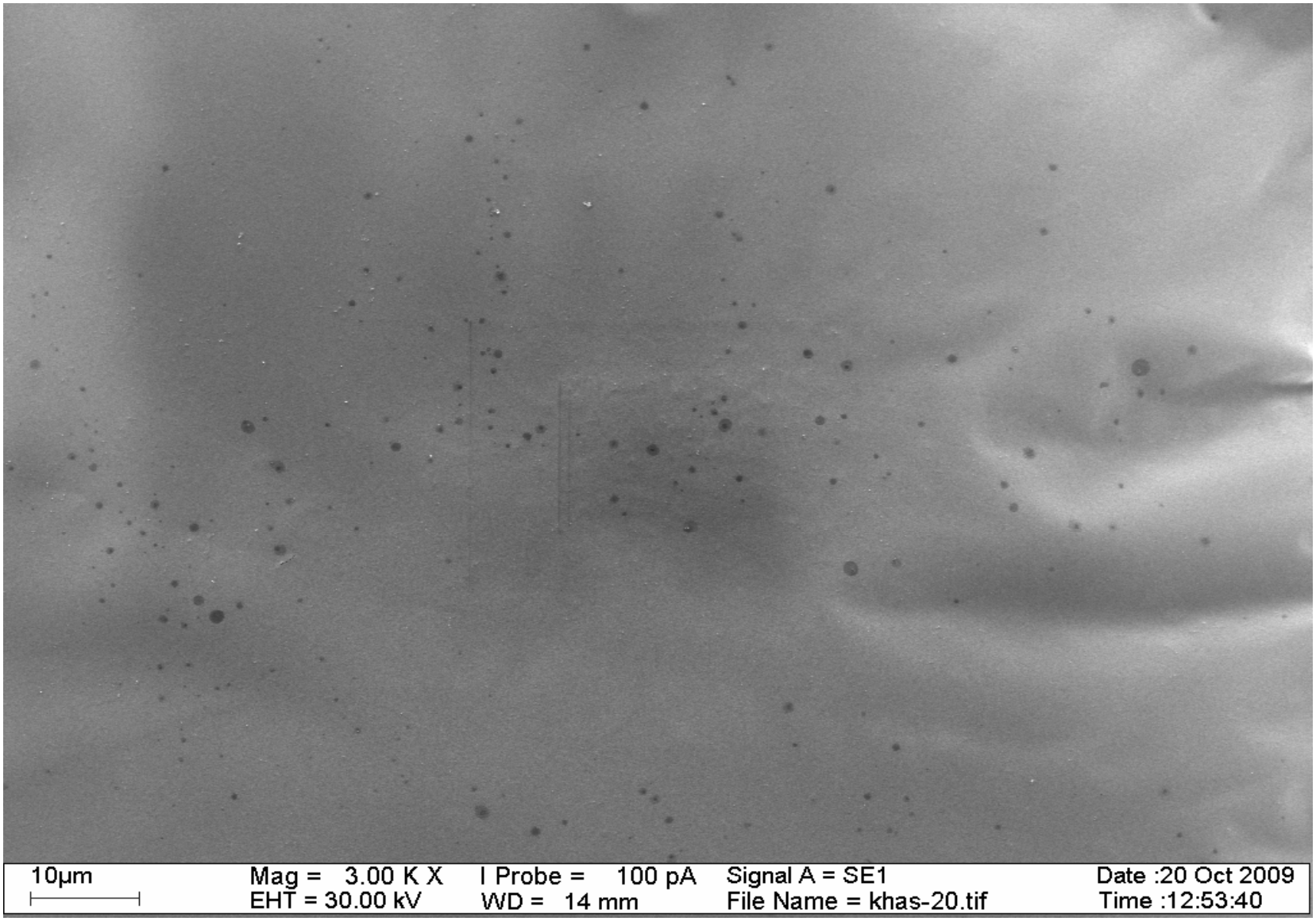

Fig. 10. Interaction of jet with the gold film and the formation of local quantum holes

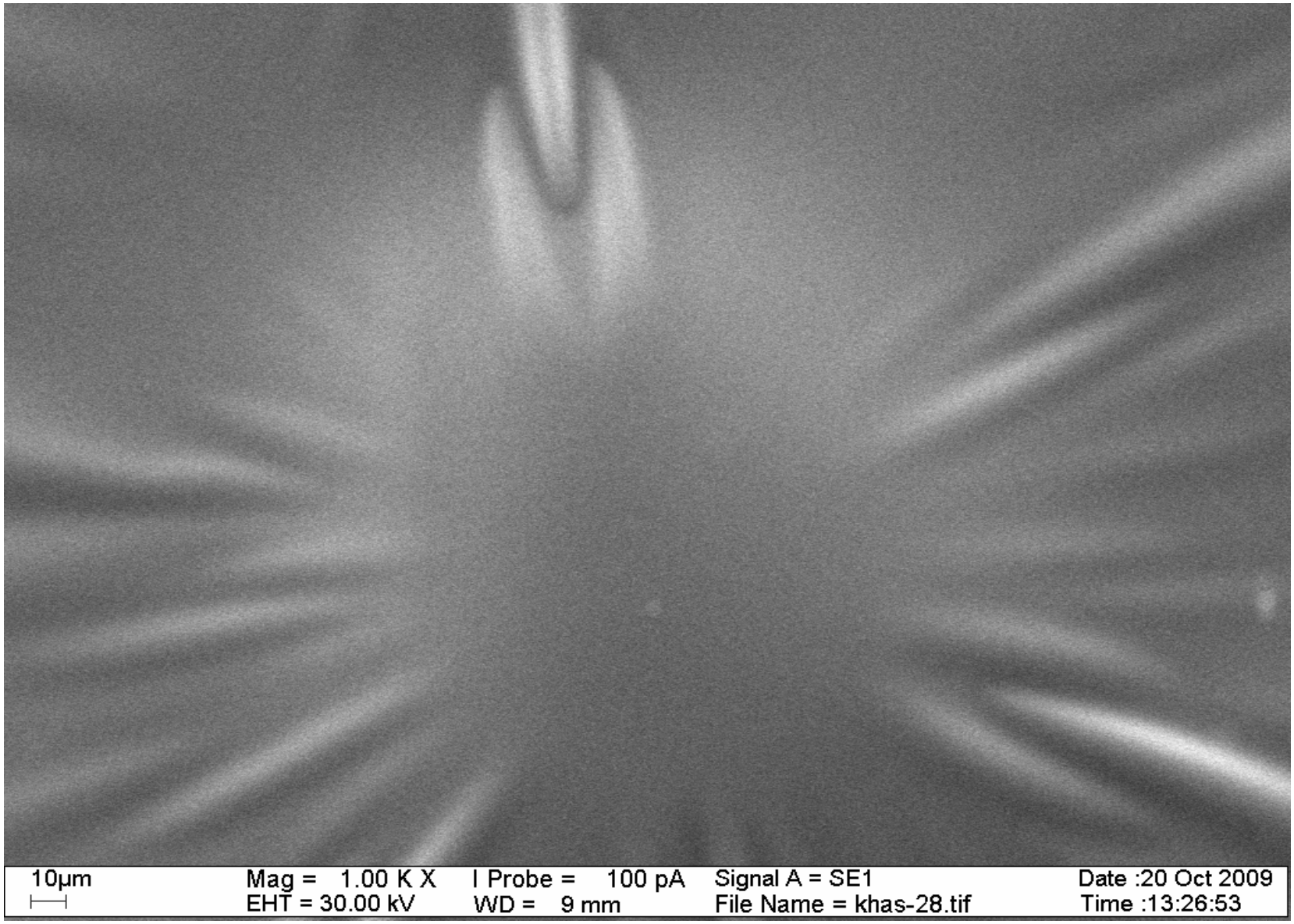

Fig. 11. The structure of quantum hole on the gold film

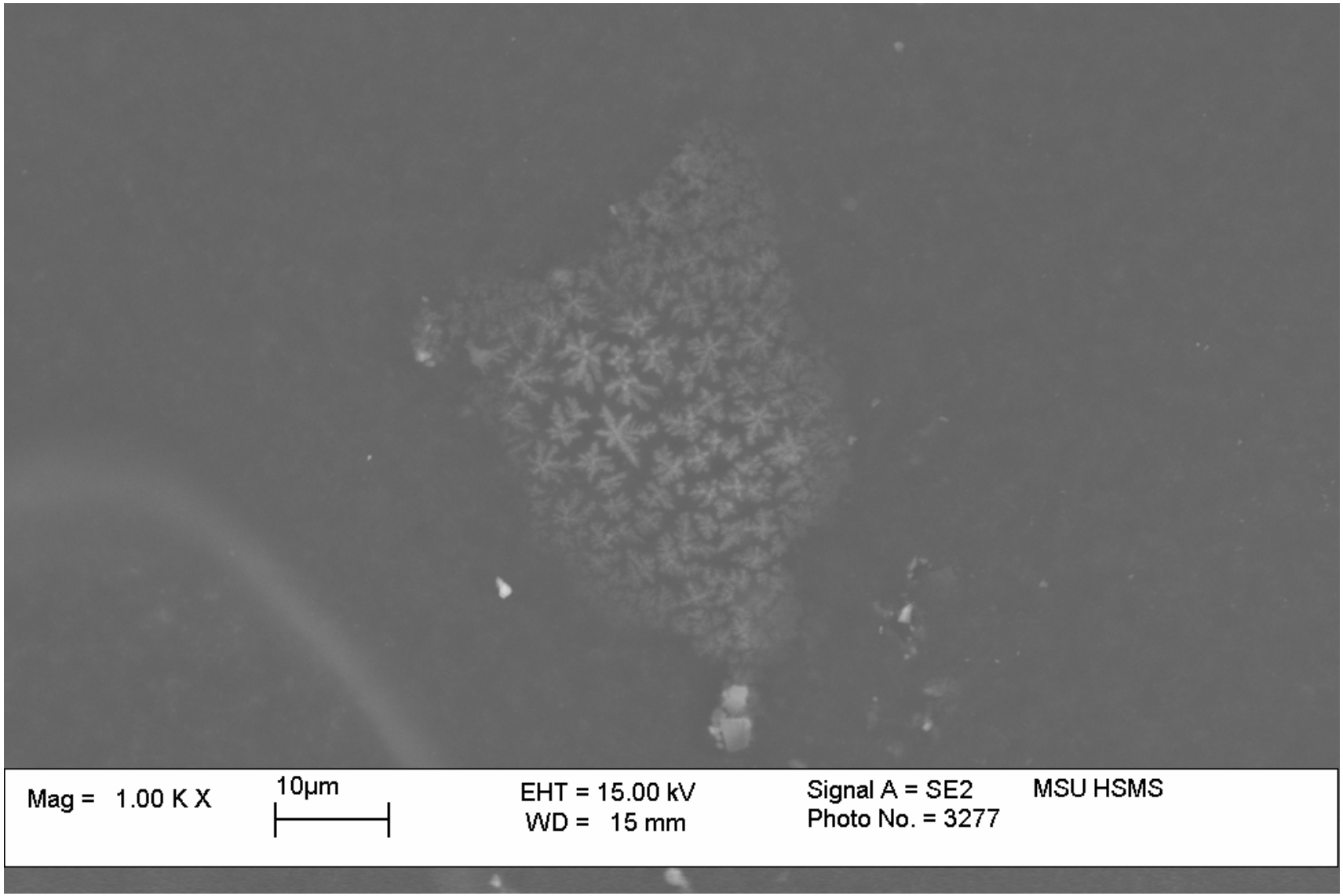

Fig. 12. The synthesis of nano-crystal on a substrate by using the phenomenon of super-compressibility in quantum hole

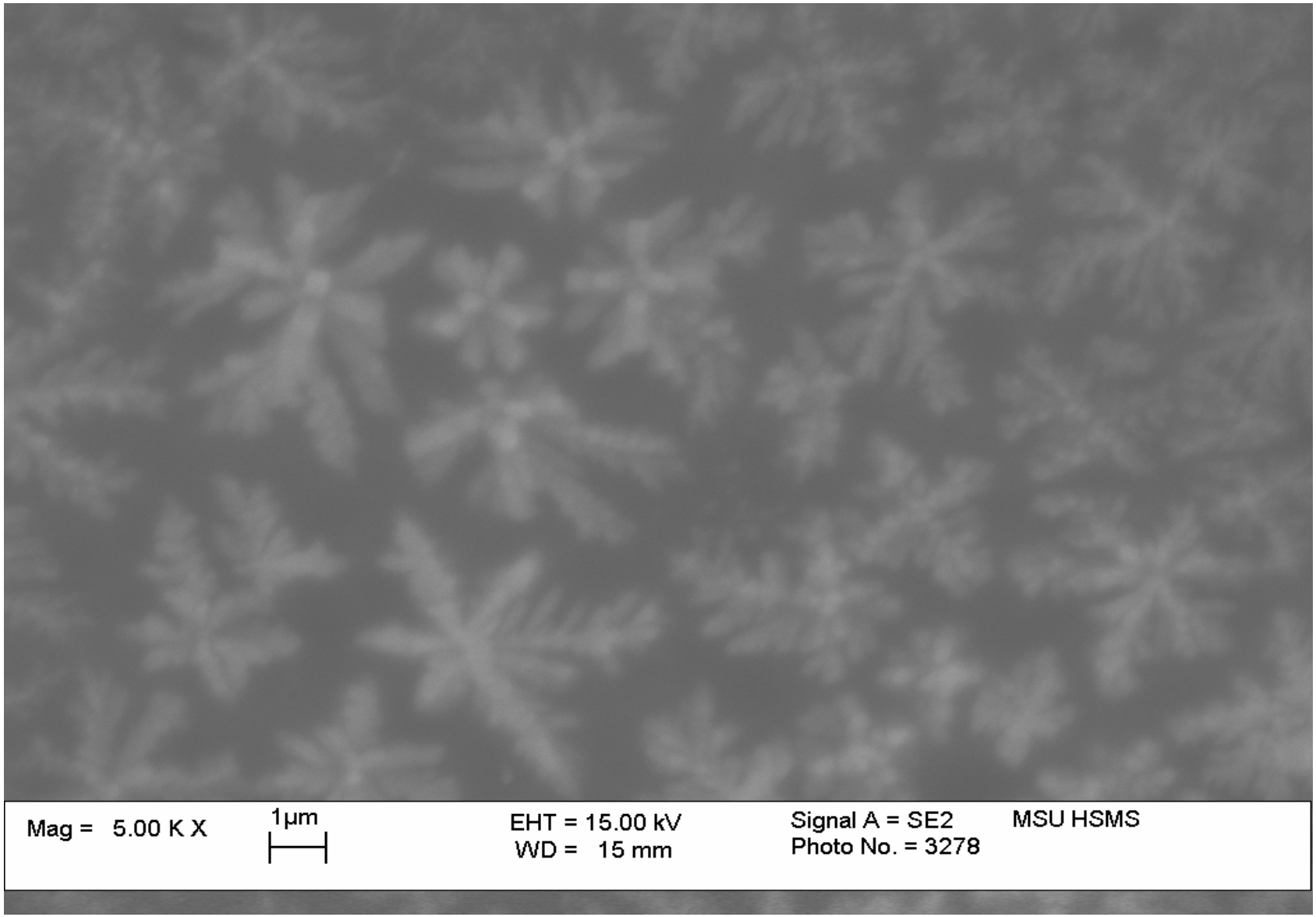

Fig. 13. The synthesis of nano-crystal on a substrate by using the phenomenon of super-compressibility in quantum hole.

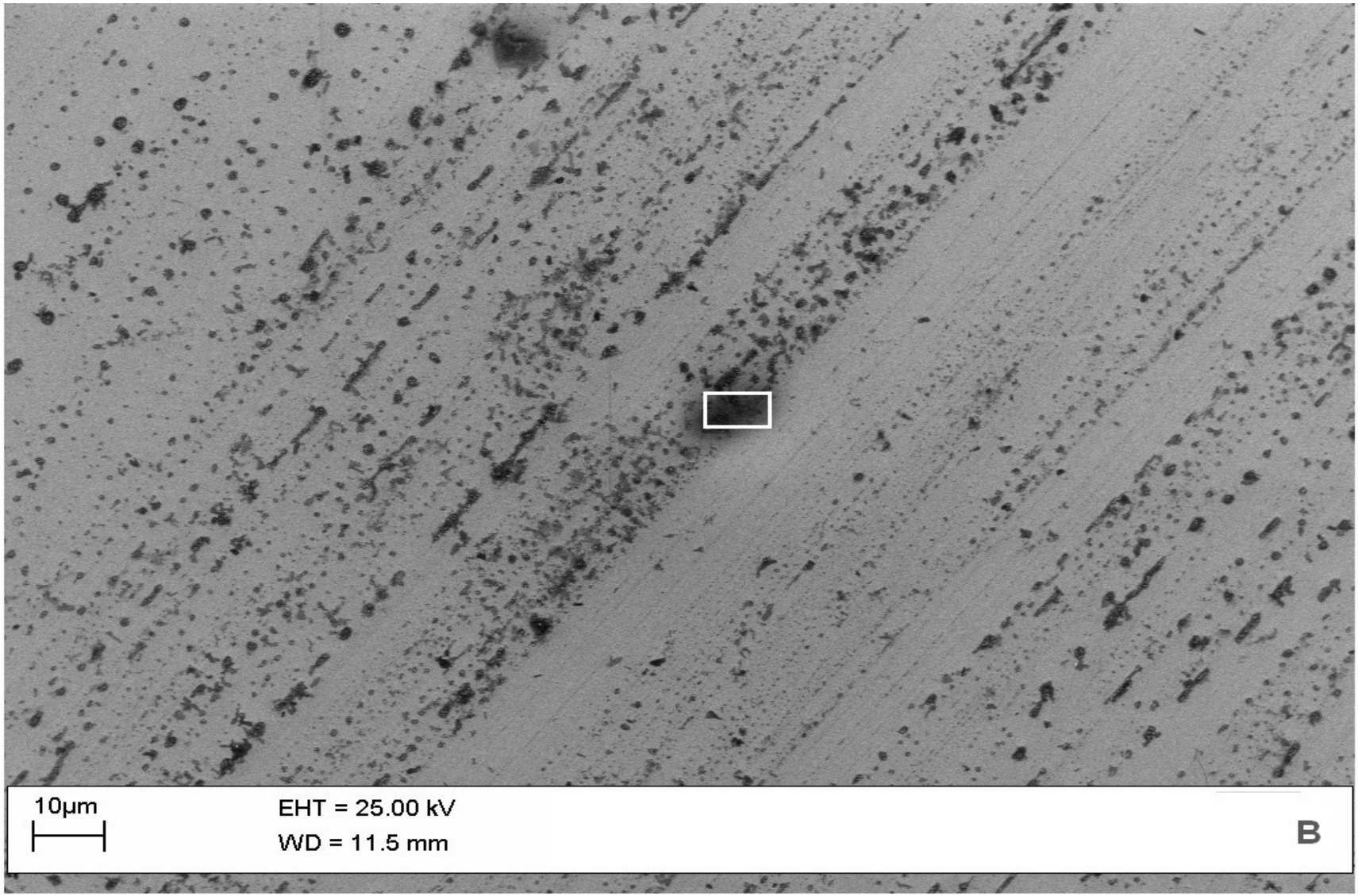

Fig. 14. Synthesis of carbon from the gaseous helium during electromagnetic super-compressibility in quantum hole.

Sample - B

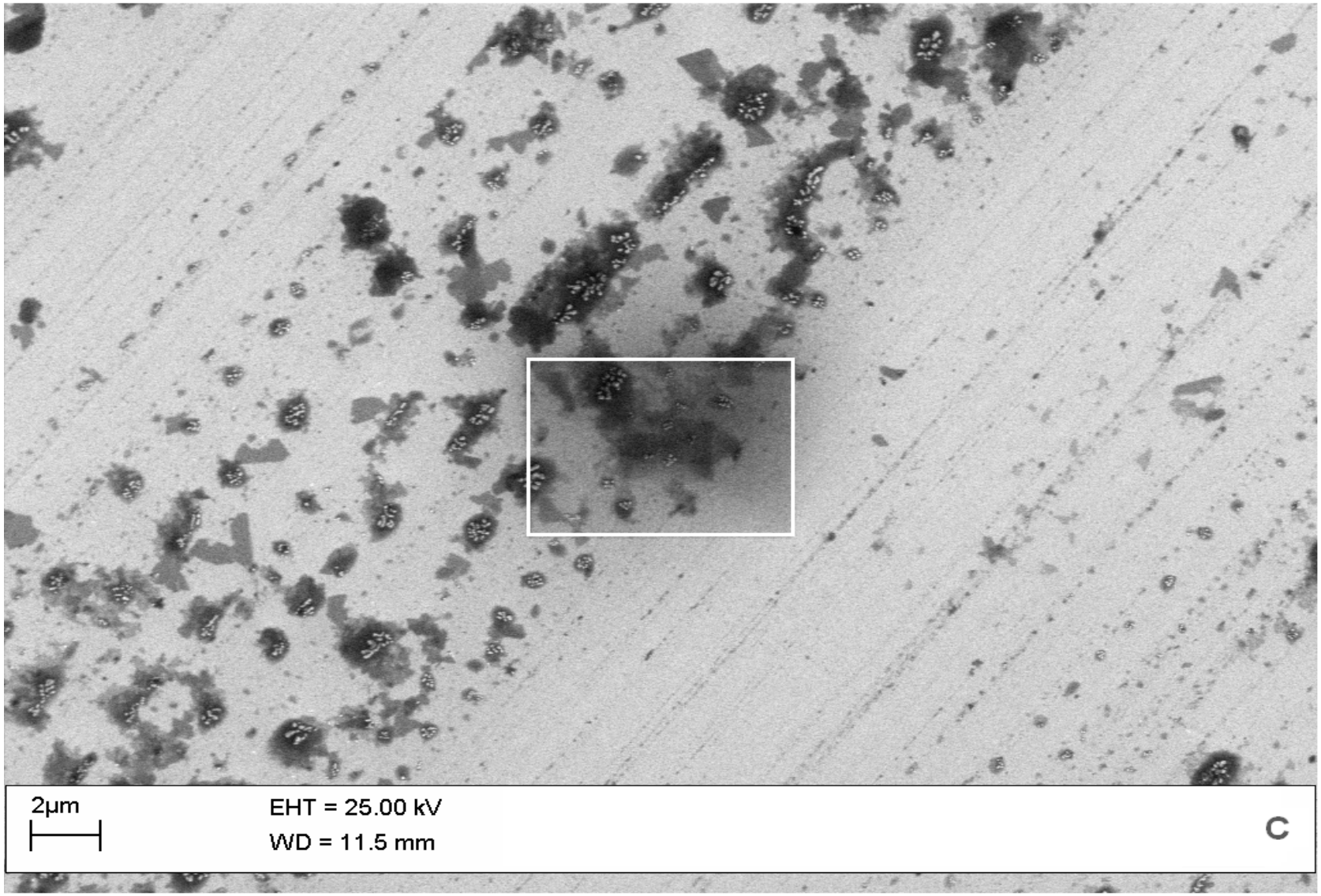

Fig. 15. Synthesis of carbon from the gaseous helium during electromagnetic super-compressibility in quantum hole.

Sample - C

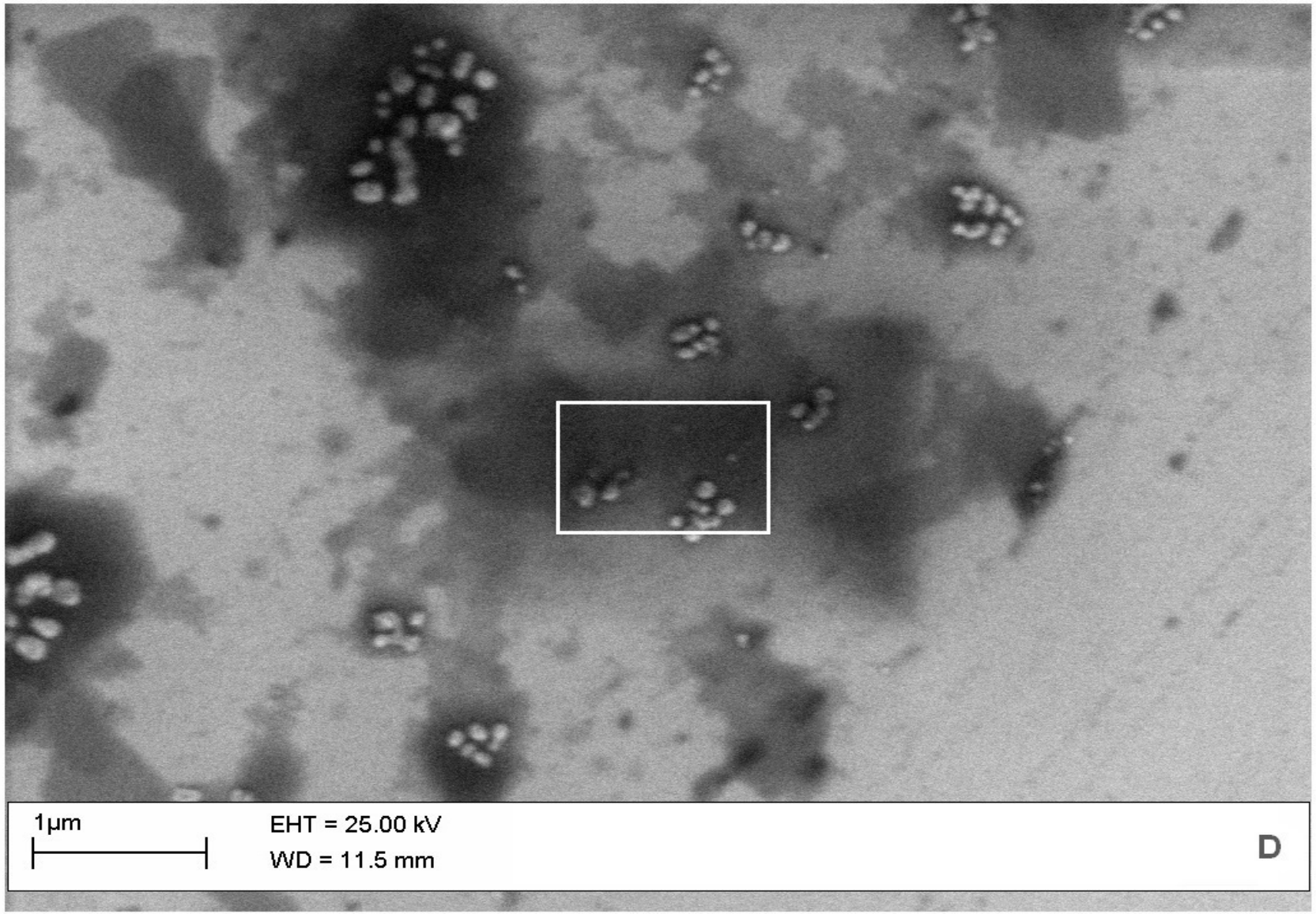

Fig. 16. Synthesis of carbon from the gaseous helium during electromagnetic super-compressibility. Sample - D

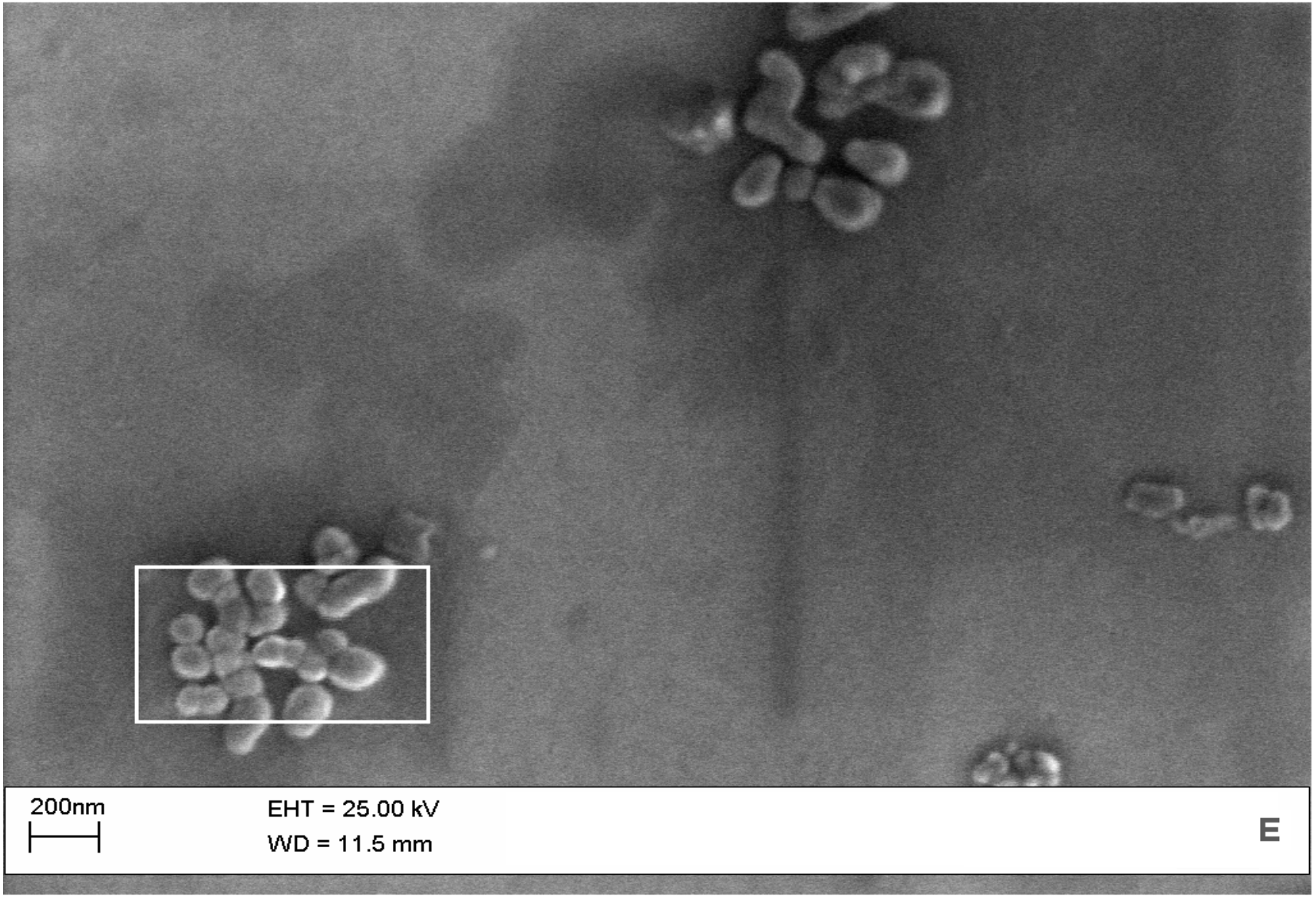

Fig. 17. Synthesis of carbon from the gaseous helium during electromagnetic super-compressibility. Sample - E

SAMPLE	C	O	Si	TOTAL
B	14.62	0.68	84.71	100
C	10.91	0.65	88.44	100
D	2.13	0.77	97.11	100
E	14.74	0.77	84.49	100

Fig. 18. The weight content of the elements in percentage

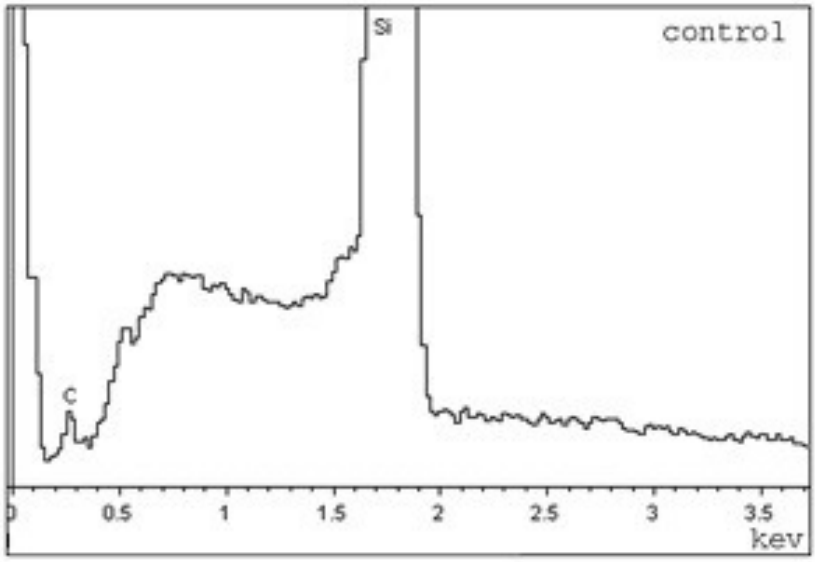

Fig. 19. Spectrum of the reference surface of the silicon substrate

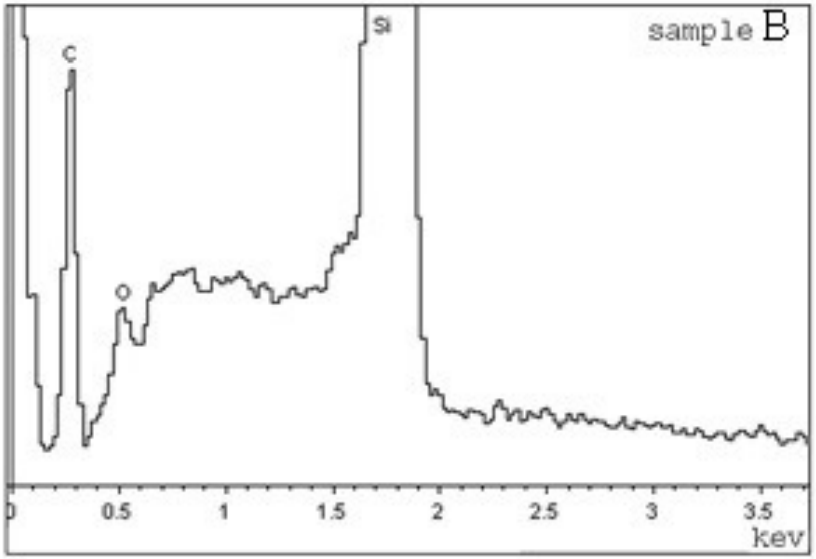

Fig. 20. Spectrum of surface of the silicon substrate.
Sample - B

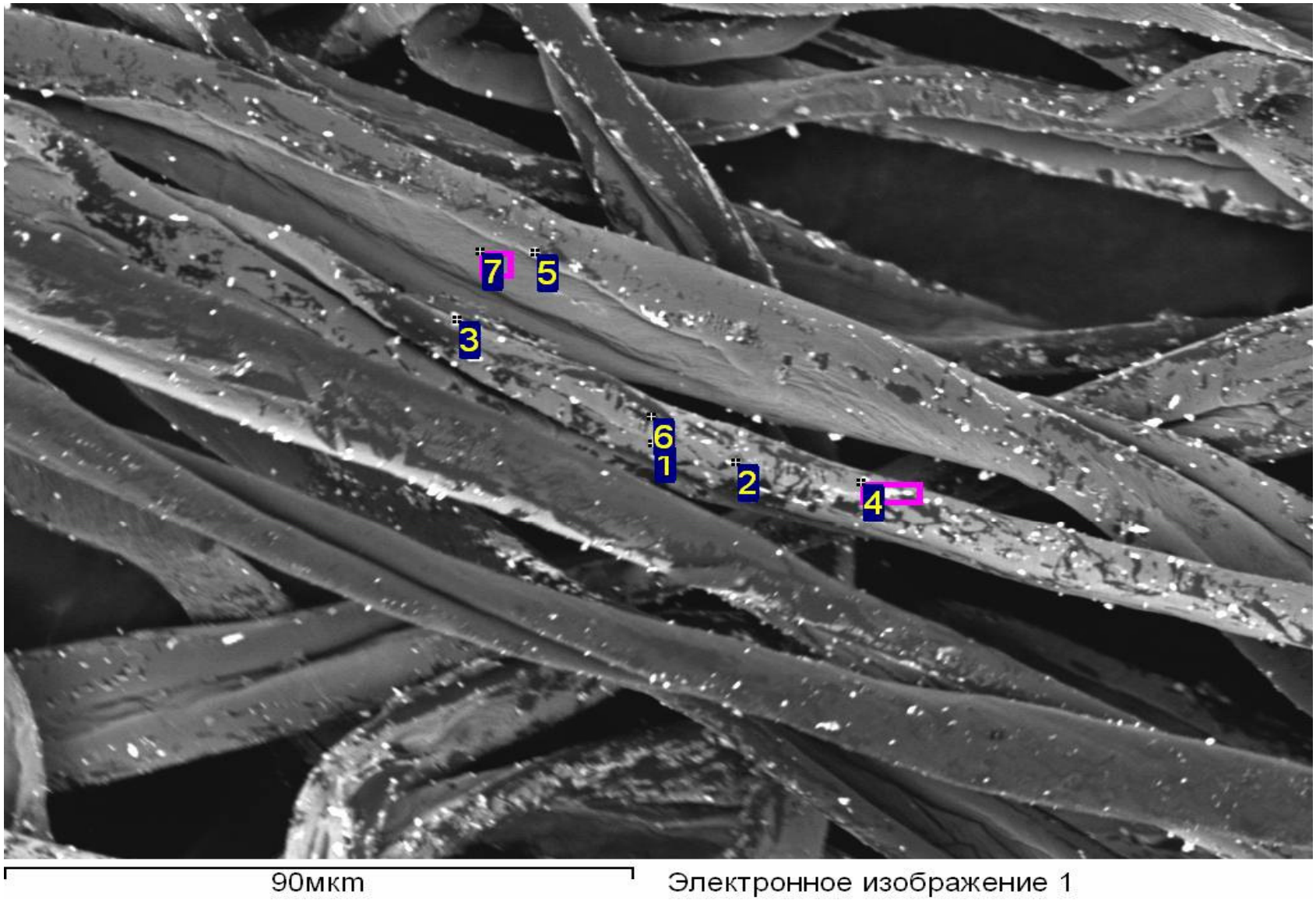

Fig. 21. Synthesis of calcium from argon using electromagnetic super-compressibility in quantum hole.

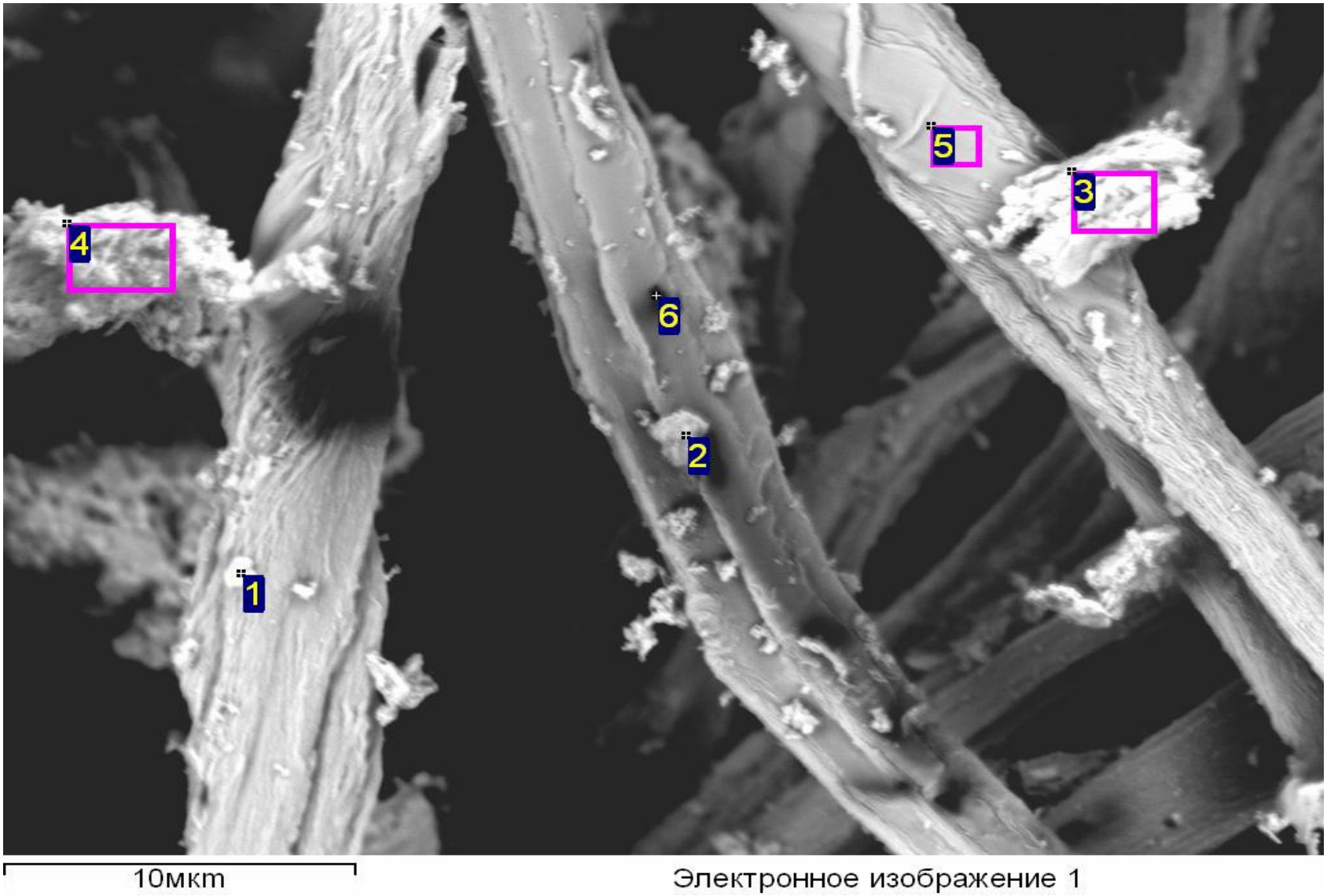

Fig. 22. Synthesis of calcium from argon during electromagnetic super-compressibility in quantum hole.

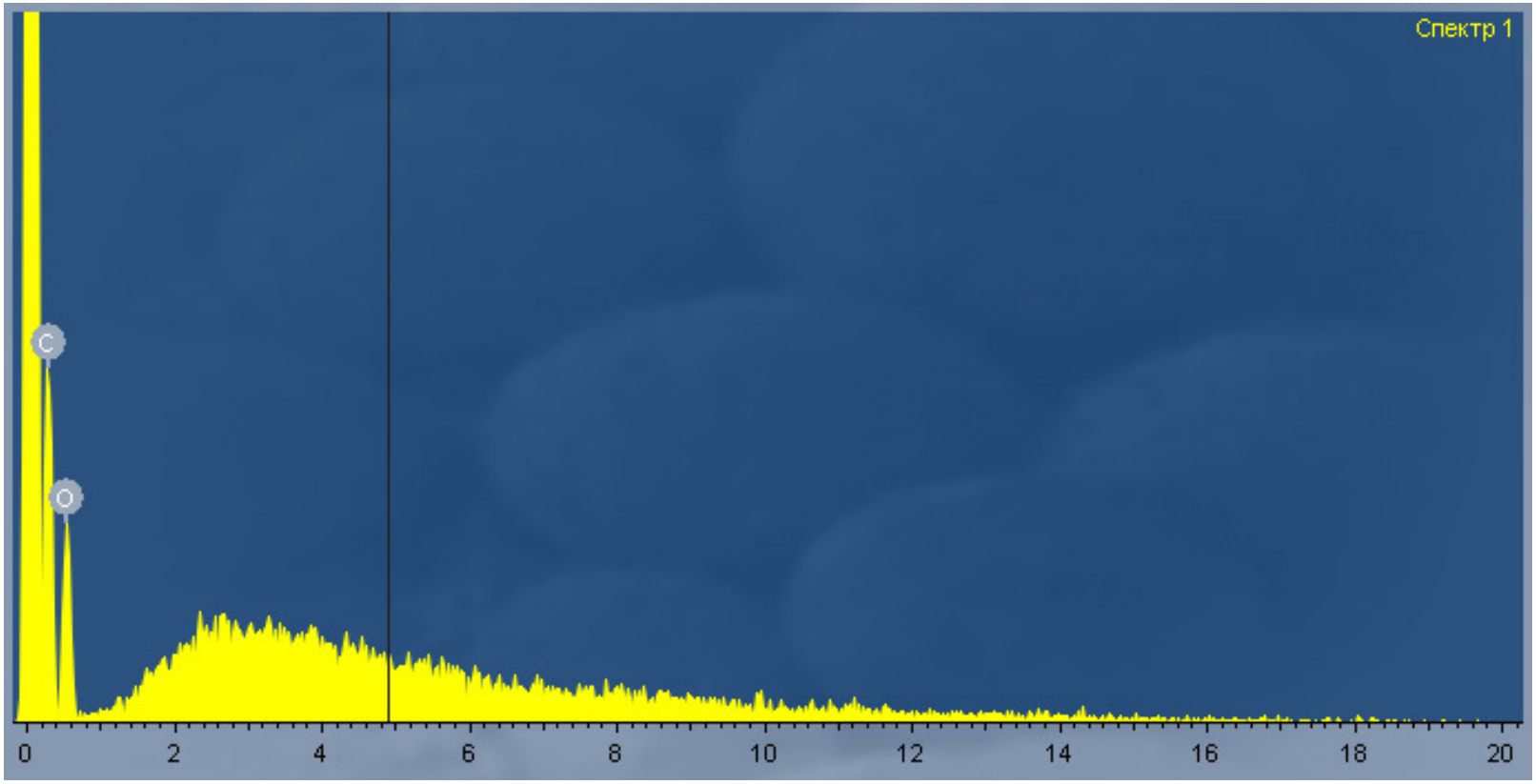

Fig. 23. Spectrum of sector №1

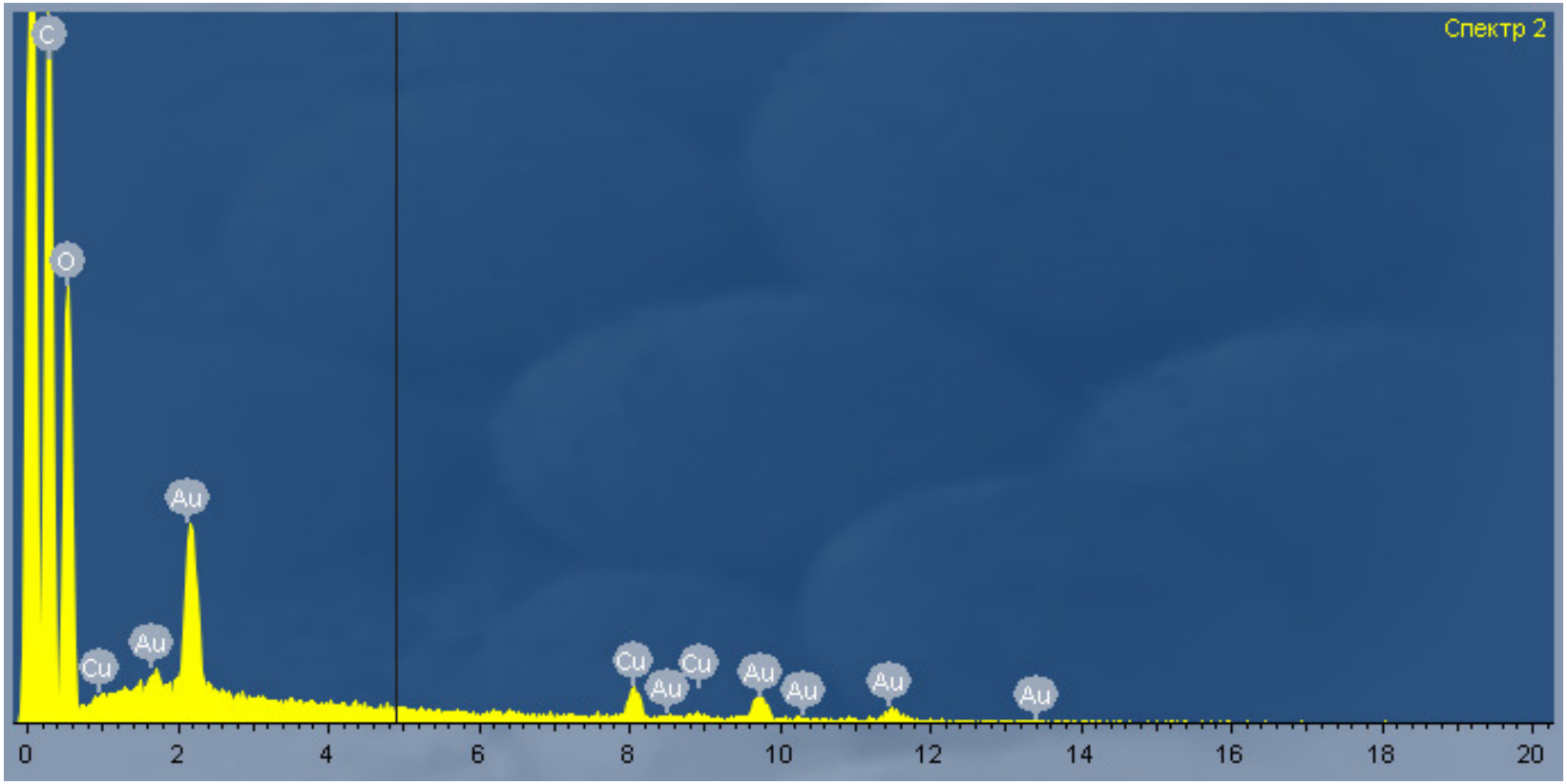

Fig. 24. Spectrum of sector №2

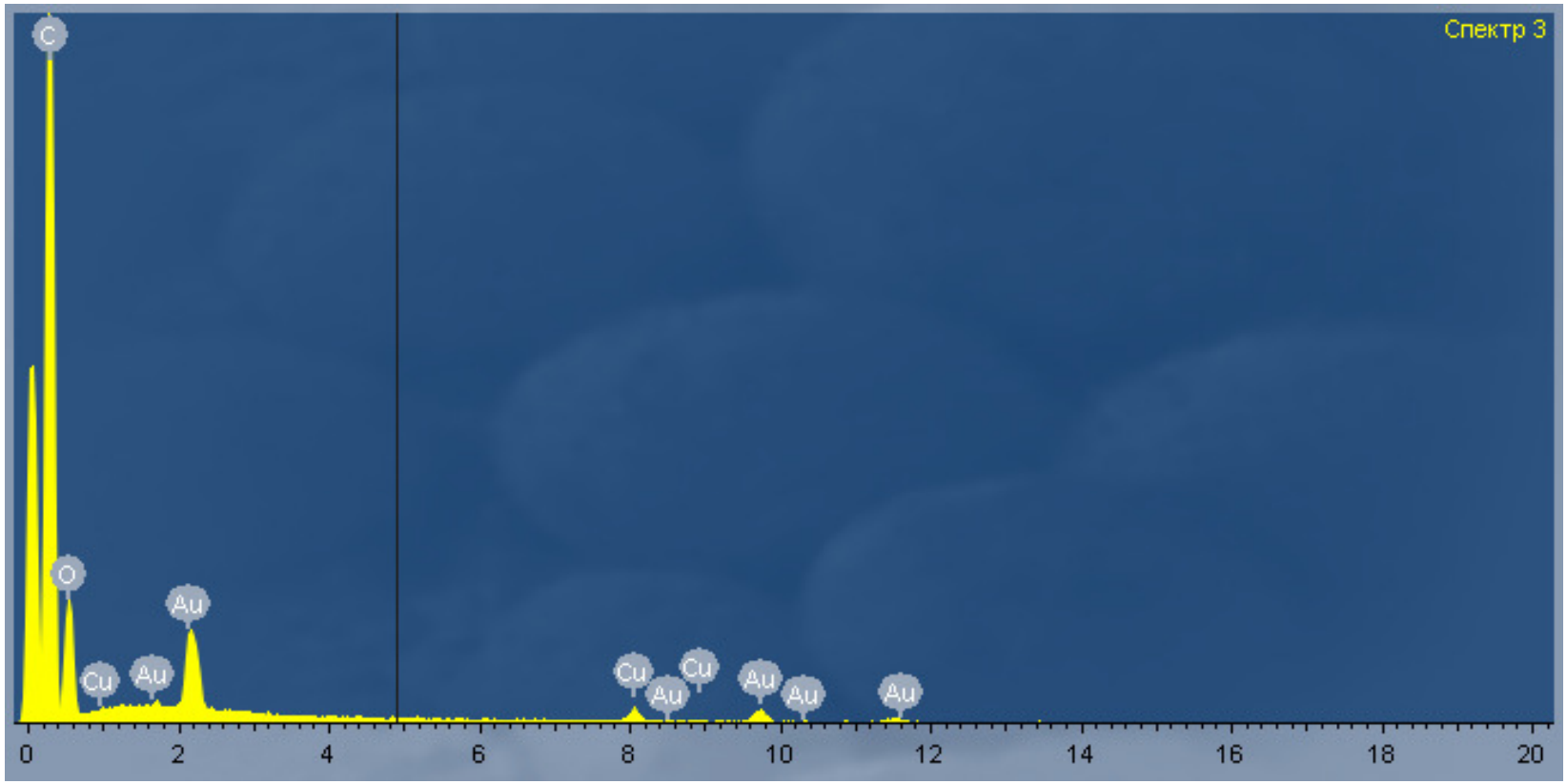

Fig. 25. Spectrum of sector №3

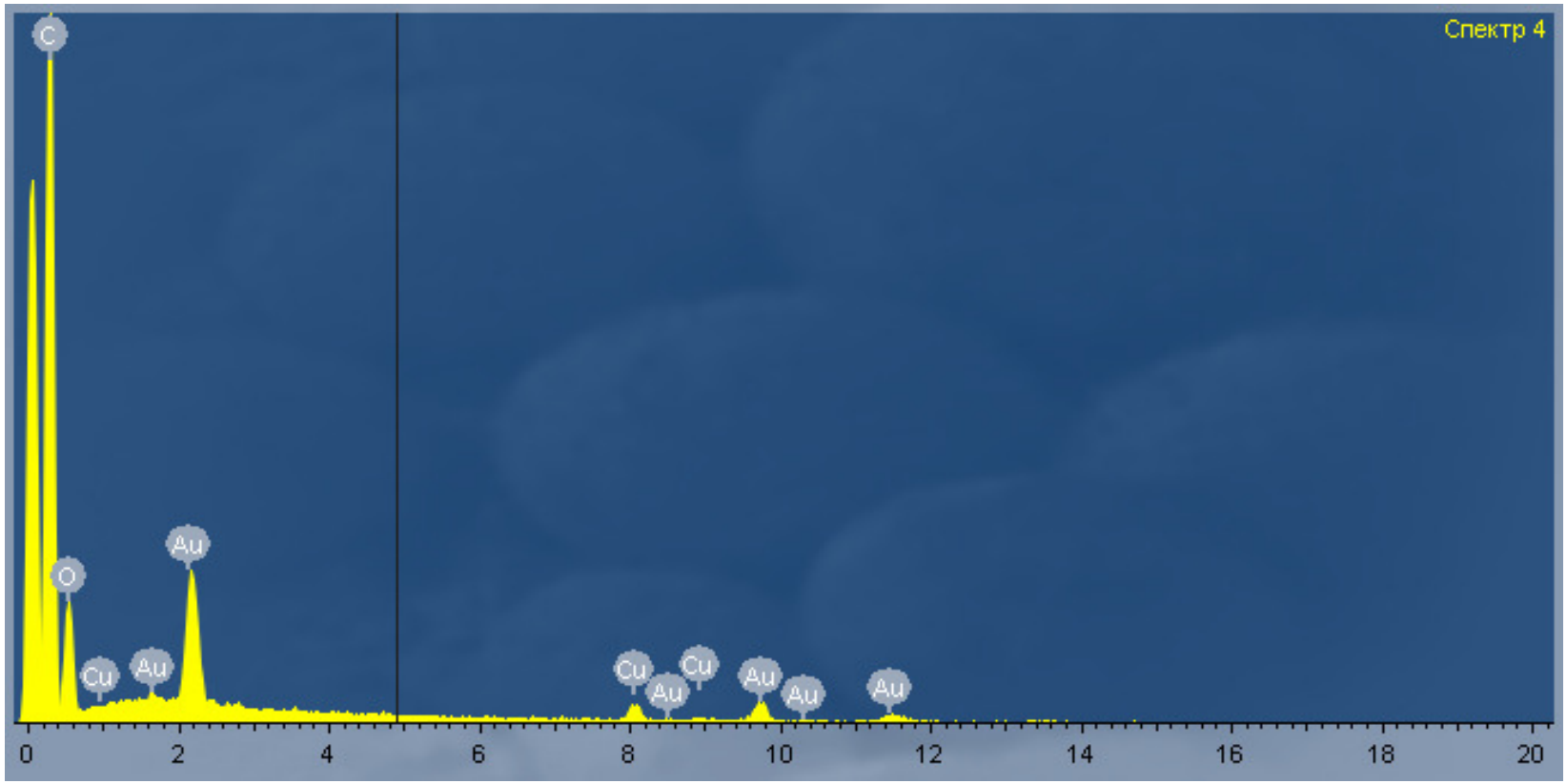

Fig. 26. Spectrum of sector №4

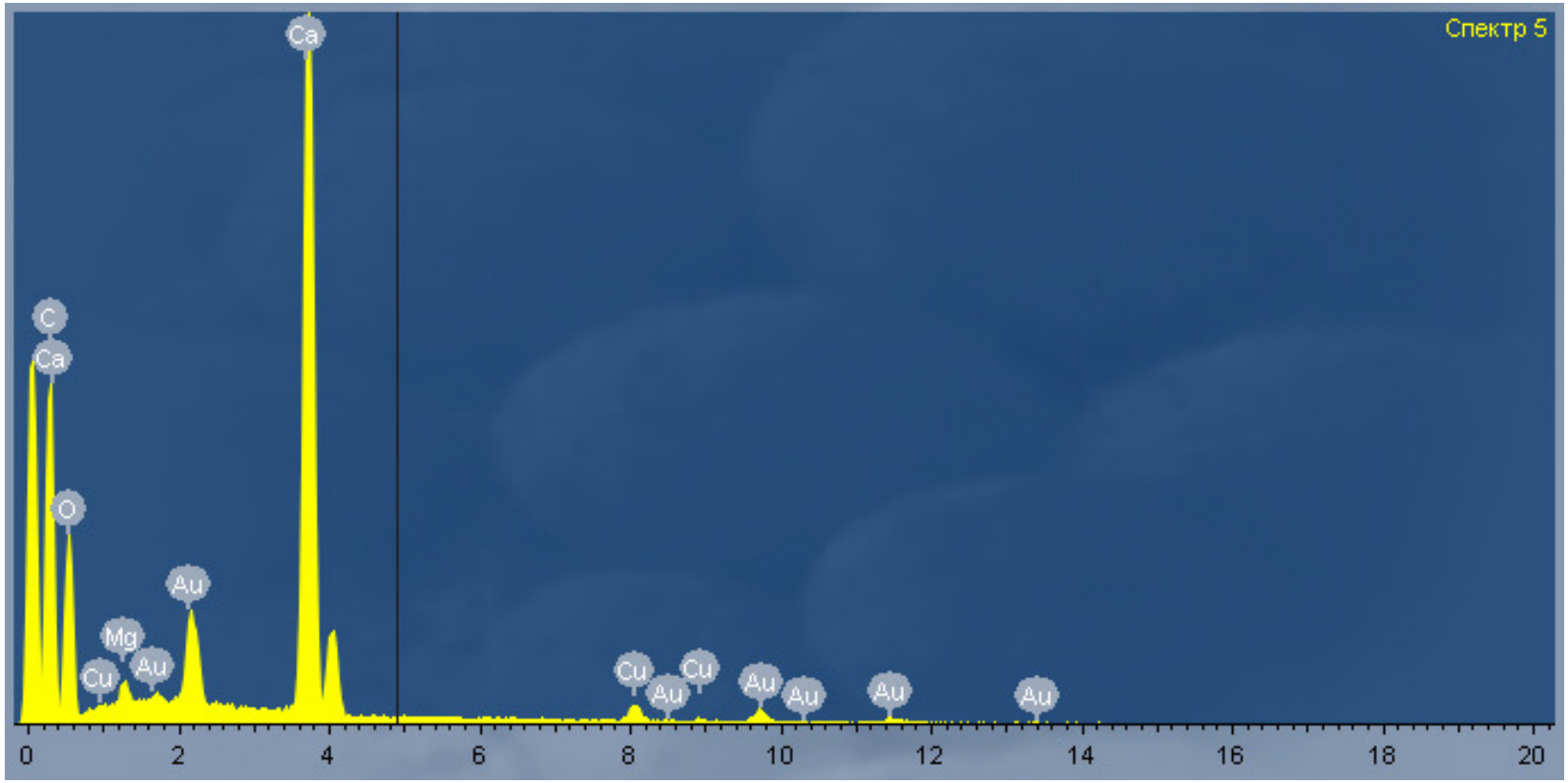

Fig. 27. Spectrum of sector №5

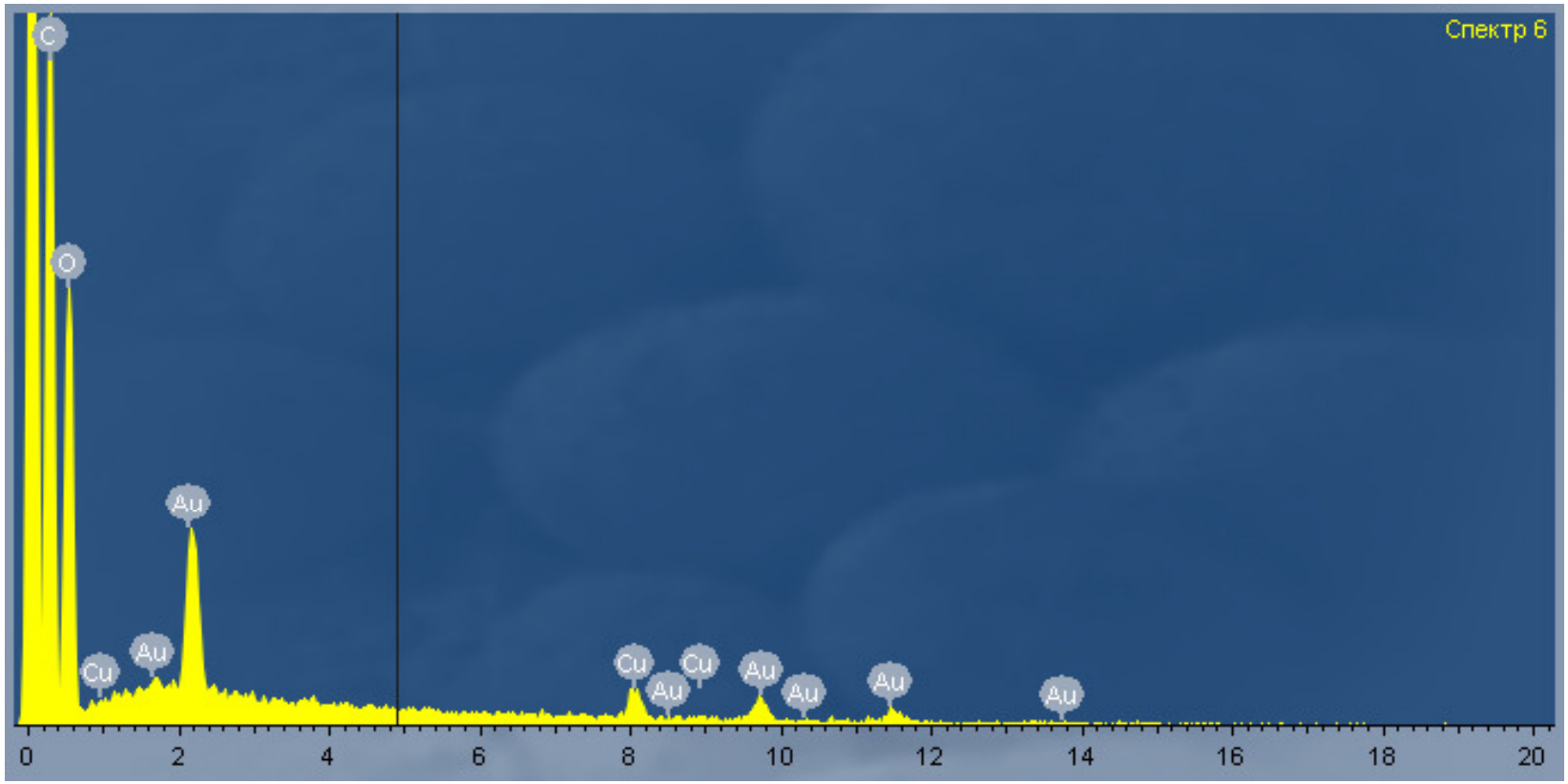

Fig. 28. Spectrum of sector №6

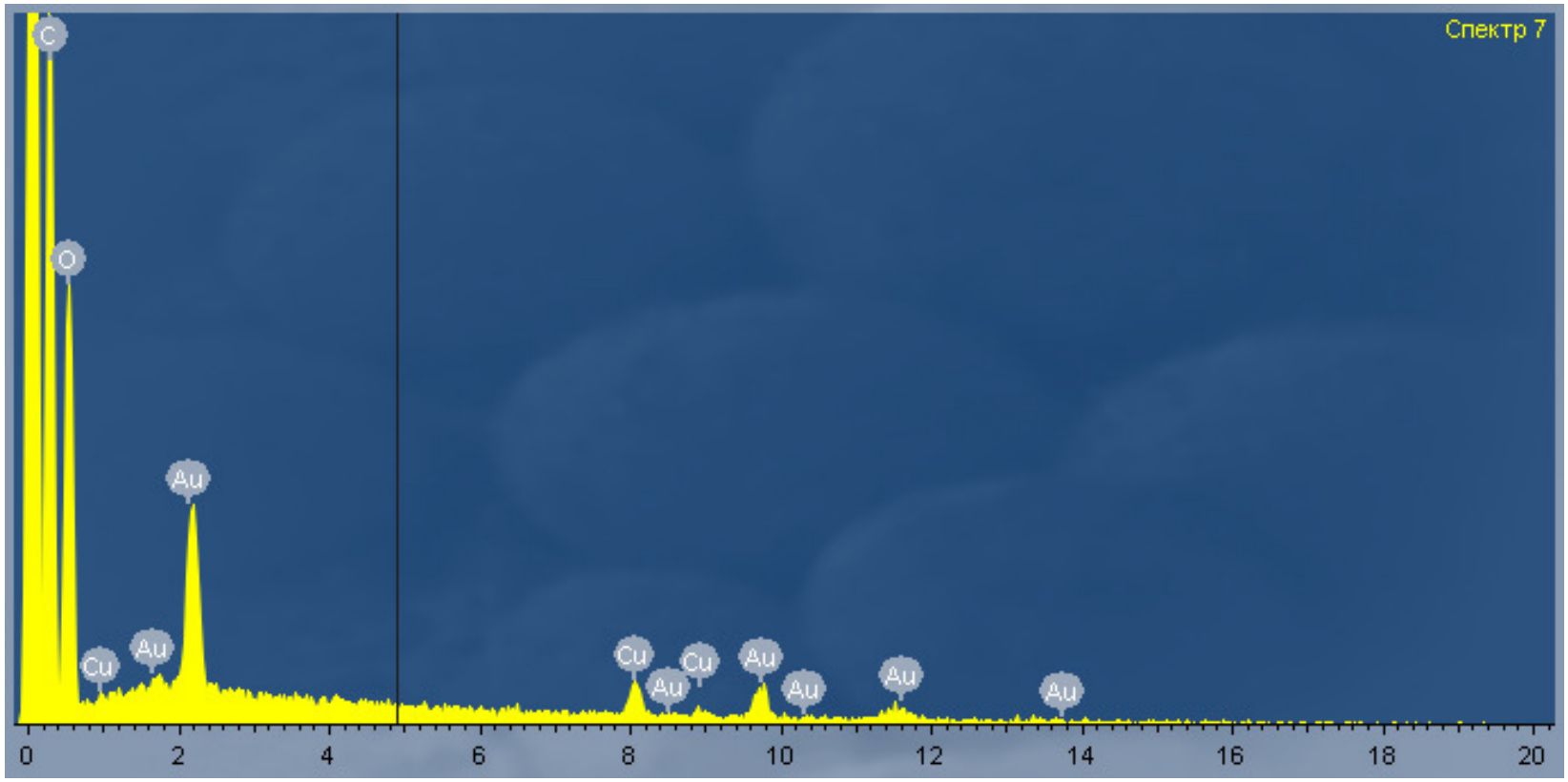

Fig. 29. Spectrum of sector №7

Conclusions

- ✓ Electromagnetic super-compressibility in quantum hole was first discovered in spiral instability of subsonic and supersonic flow from the dynamic emitter.
- ✓ Applying HF field to the central cone of dynamic emitter we observe in the jet flowing out of it quantum hole structure and the luminous halo arises.
- ✓ Our theoretical calculations and many experimental results give us strong reason to suppose that the creation of quantum hole and subsequently super-compressibility is the result of interaction of condensed matter with the quantum field of surrounding space.
- ✓ Electromagnetic super-compressibility in quantum hole gives a new method of synthesis of chemical elements and nanomaterials.
- ✓ Spectral analysis of the synthesis of elements and nanoparticles shows high productivity with low energy consumption.

Spiral instability of supersonic jet structure study contributors

- Dept. Gas and Waves Dynamics Mechanical and Mathematics Faculty, Lomonosov Moscow State University: *Prof Robert I. Nigmatulin, Prof Nikolay N. Smirnov, Prof Alexander V. Zvyagin* **double spiral supersonic jet discussions**
- United Institute High Temperatures of RAS Russia, Div. Magnet-Plasma Aerodynamics: Spectrometry Lab. *Prof. A.I.Klimov &Team* **HF field and double waves spiral jet**
- Baranov's Central Institute of Aviation Motor-construction (Prof. A.N.Kraiko) **Toepler-shadow spiral jet structure**
- Mechanics Scientific Research Institute of Lomonosov Moscow State University: *Sergei V.Governyuk, Oleg N. Ivanov, Mihail Berezencev,Tanya Zaharova /* **Toepler, flow-stand, resonance cord supersonic flow transparency**

Spiral instability of supersonic jet structure study contributors

- Prokhorov's Institute of General Physics of RAS ("IOFAN") Lab.Optics and Spectroscopy: *Prof.Konstantin V.Verischagin, Bagrat V. Melkumyan* **high energy light vertical emission phenomenon**
- Theoretics Study Dept. Head, Lab. of Plasma Study *Prof.Andrei A. Ruhadze* **plasma in gas discharge**
- Physical Faculty of Lomonosov State University Lab.Physics of Semiconductors *Alexandr E.Yunovich* / **gas flow spectrophotometry** Dept. of Physical Electronics and Plasma Lab., *Prof.Andrey F.Alexandrov' s team* **gas flow interaction with solid matter barriers**
- Waves Processes and Vibration Lab.: *Prof. Vladimir B. Braginsky's team* **detection of gravitational waves discussions**

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References

[1] L. D. Landau, E. M. Lifshitz. Field Theory, Moscow: “Nauka”, p. 450, (1973).

[2] B. M. Dakhel. Theory of Oscillations of Gravitational Waves, Advances in Applied Physics (2013), Vol. 1, № 1, pp. 1-7, HIKARI Ltd, www.m-hikari.com .

[3] Ph. Russell, J. Montgomery, Electromagnetic Gravitation, (29 Aug. 2006), http://meetings.aps.org/Meeting/MAR05/Event/28518, http://adsabs.harvard.edu/abs/2005APS..MAR.R1197M

[4] Kh. Khasanov. High-energy radiation of continuous medium as it interacts with sub-millimeter fields of outer space, Proceedings of 11th Workshop on magneto-plasma aerodynamics, Moscow, April 10-12 (2012), pp. 96-97.

[5] Kh. Khasanov and S. V. Petukhov, “Dynamic Emitter”, RF Patent No. 2058196, 1996.

[6] Kh. Khasanov. Emission of High Energy during Super-Compressibility of Supersonic Jets, Open Journal of Fluid Dynamics (2012), Vol. 2, pp. 172-179.

[7] Kh. Khasanov. Visualization of Super-Compressibility in Supersonic Spiral-Twisted Jets. Physics Letters A (2012), Vol. 376, issue 5, pp.748-753.

[8] Kh. Khasanov. Super-Compressibility Phenomenon, Journal of Modern Physics (2013), Vol. 4, № 2, pp. 200-207.

[9] Kh. Khasanov. The Light during Gravitational Super-Compressibility, Journal of Modern Physics, (2013), Vol. 4, № 4, pp. 468-473.

[10] R. V. Pound, G. A. Rebka Jr. Gravitational Red-Shift in Nuclear Resonance, Physical Review Letters (1959), Vol. **3** (9): 439–441. Bibcode:1959PhRvL...3..439P. doi:10.1103/PhysRevLett.3.439.

References

[11] R. V. Pound, G. A. Rebka Jr. Apparent Weight of Photons, Physical Review Letters (1960), Vol. **4** (7): 337–341. Bibcode:1960PhRvL...4..337P. doi:10.1103/PhysRevLett.4.337.

[12] R. V. Pound, J. L. Snider. Effect of Gravity on Nuclear Resonance, Physical Review Letters (1964), Vol. **13** (18): 539–540. Bibcode:1964PhRvL..13..539P. doi:10.1103/PhysRevLett.13.539.

[13] J. Weber, G. Hinds, Interaction of Photons and Gravitons, Physical Review (1962), Vol. 128, pp. 2414-2421.

[14] M. R. Edwards. Photon-Graviton Recycling as Cause of Gravitation, Apeiron (2007), Vol. 14, № 3, pp.214-233.

[15] Kh. Khasanov. The Phenomenon of Electro-Gravitation. Symposium on Experimental Gravitation "Gravitation Frontiers", Abstracts, Samarkand, Uzbekistan, Aug.16-21 (1999).

[16] Kh. Khasanov. Phenomena Taking Place at the Atomic Level Under Certain Perturbation, 56th International Symposium on Molecular Spectroscopy (Abstracts), Ohio State University, Jun 12-16 (2001), p. 125.

[17] Kh. Khasanov. Quantum Anti-Gravitation of Vapor-Air Jet, 56th International Symposium on Molecular Spectroscopy (Abstracts), Ohio State University, Jun 12-16 (2001), p. 199.

[18] Kh. Khasanov. Antigravitation Quantum High Energy, 55th International Symposium on Molecular Spectroscopy (Abstracts), Ohio State University, Jun 12-16 (2000), p. 149.

[19] Kh. Khasanov. High Energy Photon Emission against Gravity, The 12th International Workshop on Magneto-Plasma Aerodynamics (Abstracts), Moscow, JIHT of RAS, March 26-28 (2013), p. 127.

[20] Kh. Khasanov, Electromagnetic Super – Compressibility , Journal of Material Sciences & Engineering Volume 2, Issue 4, Published October 18, 2013 - http://dx.doi.org/10.4172/2169-0022.1000131

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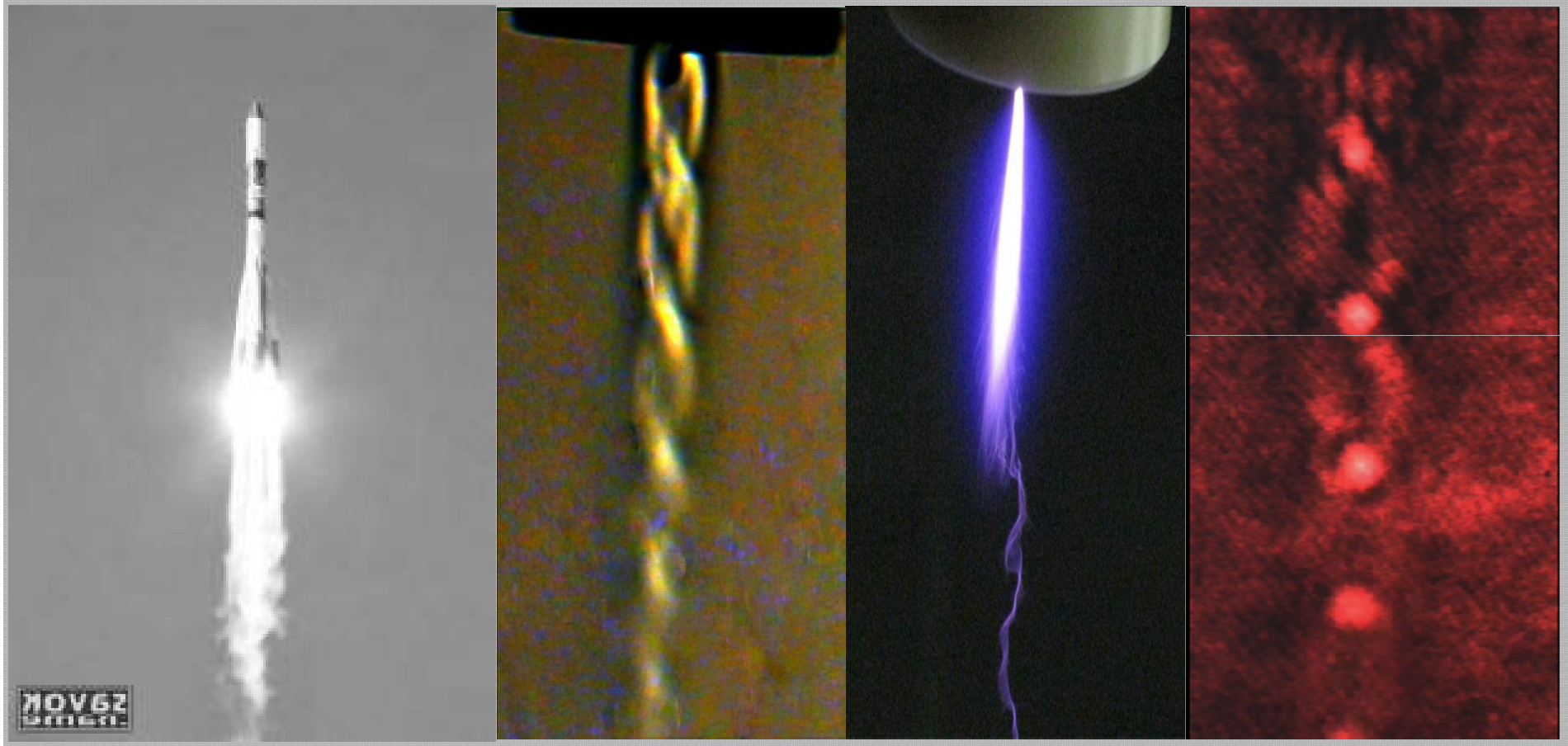

Energy of modern rocket and space technology

In phenomenon of super-compressibility in quantum hole I see the future of aeronautics and astronautics!

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