

List of Publications – May 2021

- 2021 Strohm, C., **Aprilis, G.**, Kupenko, I., Vasiukov, D., Cerantola, V., Chumakov, A., Rueffer, R., McCammon, C. and Dubrovinsky, L., 2019. Fully time-resolved Synchrotron Mössbauer Spectroscopy for pulsed laser heating experiments in diamond anvil cells. **Under revision in Journal of Synchrotron Radiation**
- 2021 Koemets, E., Leonov, I., Bykov, M., Bykova, E., Chariton, S., **Aprilis, G.**, Fedotenko, T., Clément, S., Rouquette, J., Haines, J. and Cerantola, V., 2021. Revealing the Complex Nature of Bonding in the Binary High-Pressure Compound FeO 2. *Physical review letters*, 126(10), p.106001.
- 2020 **Aprilis, G.**, Pakhomova, A., Chariton, S., Khandarkhaeva, S., Melai, C., Bykova, E., Bykov, M., Fedotenko, T., Koemets, E., McCammon, C. and Chumakov, A.I., 2020. The Effect of Pulsed Laser Heating on the Stability of Ferropiclate at High Pressures. *Minerals*, 10(6), p.542.
- 2020 Pakhomova, A., Simonova, D., Koemets, I., Koemets, E., **Aprilis, G.**, Bykov, M., Gorelova, L., Fedotenko, T., Prakapenka, V. and Dubrovinsky, L., 2020. Polymorphism of feldspars above 10 GPa. *Nature communications*, 11(1), pp.1-8.
- 2019 Serovaiskii, A., Mukhina, E., Dubrovinsky, L., Chernoutsan, A., Kudryavtsev, D., McCammon, C., **Aprilis, G.**, Kupenko, I., Chumakov, A., Hanfland, M. and Kutcherov, V., 2019. Fate of Hydrocarbons in Iron-Bearing Mineral Environments during Subduction. *Minerals*, 9(11), p.651.
- 2019 Bykov, M., Chariton, S., Fei, H., Fedotenko, T., **Aprilis, G.**, Ponomareva, A.V., Tasnádi, F., Abrikosov, I.A., Merle, B., Feldner, P. and Vogel, S., 2019. High-pressure synthesis of ultraincompressible hard rhenium nitride pernitride $\text{Re}_2(\text{N}_2)(\text{N})_2$ stable at ambient conditions. *Nature communications*, 10(1), pp.1-8.
- 2019 Fedotenko, T., Dubrovinsky, L., **Aprilis, G.**, Koemets, E., Snigirev, A., Snigireva, I., Barannikov, A., Ershov, P., Cova, F., Hanfland, M. and Dubrovinskaia, N., Laser heating setup for diamond anvil cells for in situ synchrotron and in house high and ultra-high pressure studies. *Review of Scientific Instruments*, 90(10), p.104501.
- 2019 Bykova, E., **Aprilis, G.**, Bykov, M., Glazyrin, K., Wendt, M., Wenz, S., Liermann, H.-P., Torben Roeh, J., Ehnes, A., Dubrovinskaia, N. and Dubrovinsky, L., 2019. Single-crystal diffractometer coupled with double-sided laser heating system at the Extreme Conditions Beamline P02.2 at PETRA III. *Review of Scientific Instruments*, 90(7), p.073907.
- 2019 Pakhomova, P., **Aprilis, G.**, Bykov, M., Gorelova, L., Krivovichev, S.S., Belov, M.P., Abrikosov, I.A. and Dubrovinsky, L., 2019. Penta- and hexa-coordinated beryllium and phosphorous in high-pressure modifications of $\text{CaBe}_2\text{P}_2\text{O}_8$. *Nature Communications*, 10(1), p.2800.
- 2019 Kupenko, I., **Aprilis, G.**, Vasiukov, D., McCammon, C., Chariton, S., Cerantola, V., Kantor, I., Chumakov, A., Rueffer, R., Dubrovinsky, L. and Sanchez-Valle, C., 2019. Magnetism in cold subducting slabs at mantle transition zone depths. *Nature*, 570, p.102.
- 2019 **Aprilis, G.**, Kantor, I., Kupenko, I., Cerantola, V., Pakhomova, A., Collings, I.E., Torchio, R., Fedotenko, T., Chariton, S., Bykov, M. and Bykova, E., 2019. Comparative study of the influence of pulsed and continuous wave laser heating on the mobilization of carbon and its chemical reaction with iron in a diamond anvil cell. *Journal of Applied Physics*, 125(9), p.095901.

- 2019 Bykov, M., Chariton, S., Fei, H., Fedotenko, T., [Aprilis, G.](#), Ponomareva, A.V., Tasnádi, F., Abrikosov, I.A., Merle, B., Feldner, P. and Vogel, S., 2019. High-pressure synthesis of ultraincompressible hard rhenium nitride pernitride $\text{Re}_2(\text{N}_2)\text{N}_2$ stable at ambient conditions. *Nature communications*, 10(1), p.2994.
- 2018 Bykov, M., Bykova, E., [Aprilis, G.](#), Glazyrin, K., Koemets, E., Chuvashova, I., Kupenko, I., McCammon, C., Mezouar, M., Prakapenka, V. and Liermann, H.P., 2018. Fe-N system at high pressure reveals a compound featuring polymeric nitrogen chains. *Nature communications*, 9(1), p.2756.
- 2018 Bykov, M., Bykova, E., Koemets, E., Fedotenko, T., [Aprilis, G.](#), Glazyrin, K., Liermann, H.P., Ponomareva, A.V., Tidholm, J., Tasnádi, F. and Abrikosov, I.A., 2018. High-Pressure Synthesis of a Nitrogen-Rich Inclusion Compound $\text{ReN}_8 \cdot x\text{N}_2$ with Conjugated Polymeric Nitrogen Chains. *Angewandte Chemie International Edition*, 57(29), pp.9048-9053.
- 2018 Gorelova, L.A., Pakhomova, A.S., [Aprilis, G.](#), Dubrovinsky, L.S. and Krivovichev, S.V., 2018. Pentacoordinated silicon in the high-pressure modification of datolite, CaBSiO_4 (OH). *Inorganic Chemistry Frontiers*, 5(7), pp.1653-1660.
- 2017 Vasiukov, D.M., Dubrovinsky, L., Kupenko, I., Cerantola, V., [Aprilis, G.](#), Ismailova, L., Bykova, E., McCammon, C., Prescher, C., Chumakov, A.I. and Dubrovinskaia, N., 2017. Pressure-induced spin pairing transition of Fe^{3+} in oxygen octahedra. *arXiv preprint arXiv:1710.03192*.
- 2017 Dubrovinsky, L., Koemets, E., Bykov, M., Bykova, E., [Aprilis, G.](#), Pakhomova, A., Glazyrin, K., Laskin, A., Prakapenka, V.B., Greenberg, E. and Dubrovinskaia, N., 2017. Diamond anvils with a round table designed for high pressure experiments in DAC. *High Pressure Research*, 37(4), pp.475-485.
- 2017 [Aprilis, G.](#), Strohm, C., Kupenko, I., Linhardt, S., Laskin, A., Vasiukov, D.M., Cerantola, V., Koemets, E.G., McCammon, C., Kurnosov, A. and Chumakov, A.I., 2017. Portable double-sided pulsed laser heating system for time-resolved geoscience and materials science applications. *Review of Scientific Instruments*, 88(8), p.084501.
- 2015 Kupenko, I., Strohm, C., McCammon, C., Cerantola, V., Glazyrin, K., Petitgirard, S., Vasiukov, D., [Aprilis, G.](#), Chumakov, A.I., Rüffer, R. and Dubrovinsky, L., 2015. Time differentiated nuclear resonance spectroscopy coupled with pulsed laser heating in diamond anvil cells. *Review of Scientific Instruments*, 86(11), p.114501.