

Yuriy . Litvin:
Died Dec 7, 2023
Born Feb 28, 1937

Yuriy A. Litvin was a Professor and major scientific researcher at the Mantle Laboratory of the Korzhinskii Institute of Experimental Mineralogy (Russian Academy of Sciences) in Chernogolovka. His scientific interests included the physical geochemistry of the Earth's mantle, genetic mineralogy of diamond and paragenetic inclusions, and experimental study of multicomponent multiphase mantle systems.

His principal scientific findings concerned the physico-chemical mechanisms of diamond formation in metal-carbon and carbonate-carbon systems; peritectic reactions of orthopyroxene and olivine (upper mantle), ringwoodite (transition zone) and bridgmanite (lower mantle – “stishovite paradox”); the physico-chemical foundations of the ultrabasic-basic evolution of mantle magmas and diamond-parental melts; and the mantle-carbonatite theory of diamond genesis. He is the author of several books: Physico-chemical studies of the Earth's deep substance melting (1991); Experimental studies of carbonate-silicate systems of the mantle in the context of the problem of diamond formation (2011); Genesis of diamonds and associated phases (2017); and Evolution of magmatic and diamond-forming systems of the Earth's lower mantle (2019). In 2020, with his colleague Oleg Safonov, he edited a special book publication entitled: Advances in Experimental and Genetic Mineralogy, Special Publication for the 50th Anniversary of DS Korzhinskii Institute of Experimental Mineralogy of the Russian Academy of Sciences, Springer. Litvin's last paper was published in Minerals 4 August 2023 entitled: The Peritectic Reaction of Olivine as the Mechanism of the Ultrabasic–Basic Evolution of the Diamond-Forming Silicate-Carbonate-(C-O-H) System: Experiments at 6.0 GPa, By Y. A. Litvin, A. V. Kuyura and A. V. Spivak.

In the course of writing this paper, Litvin wrote to me asking to confirm a quotation from the book by H.S. Yoder on Generation of Basaltic Magma.



Yuriy Litvin in contemplation.

During the course of the past 47 years, I have enjoyed a professional and personal relationship with Yuriy Litvin, which has greatly enhanced my career; following is a summary of our connections and collaborations.

I first met Yuriy in 1976 at a workshop on the Anisotropy and Heterogeneity of the Lithosphere at the Castle of Liblice in Czechoslovakia.

***Anisotropy and Heterogeneity of the Lithosphere
Castle of Liblice, Czechoslovakia, June 1976***



Attended by 75 scientists from 12 countries. Yuriy to left of Kumazawa.

Since 1971, I have attended many high- pressure meetings in Japan including the 2nd Japan-USSR Conference in Misasa in 1989 [which included a geology field trip in southern Honshu and Shikoku Islands and a stop at the Atomic Bomb site in Hiroshima—a visit that was particularly emotional for the scientists from the USSR and the US]. It was in Misasa where I met Yuriy Litvin again and invited him to spend some time at Stony Brook as visiting scientists to the NSF Center for High Pressure Research (CHiPR).

In 1991 and 1993, Yuriy Litvin came to Stony Brook for extended research visits during which he conducted high-pressure petrological experiments with Tibor Gasparik. These initial experimental studies were successful and were continued by his son Vlad Litvin and later in Chernogolovka. Previous data on the olivine+jadeite interaction with formation of garnet among the reaction products were modified with discovery of a peritectic reaction of olivine and melt and the formation of a garnet-bearing assemblage. The reaction is important as the key mechanism of the ultrabasic-basic evolution of magmatic and diamond-parental melts at upper mantle depths.



Yuriy Litvin with Tibor Gasparik and the USSA-2000 multi-anvil apparatus in the Stony Brook High-Pressure Laboratory.

During the years of Yuriy Litvin's research stay at Stony Brook, we became good friends with him and his wife, Svetlana, and subsequently enjoyed meeting them on many occasions.



Barbara Liebermann and Svetlana Litvin in Liebermann garden in 1991.



1991: Bob Liebermann and Yuriy Litvin examining the vintage of a bottle of wine.

The Litvin visits also led to Yuriy's son Vlad enrolling as a graduate student in our Department of Geological Sciences. During his stay at Stony Brook, Vlad also was one of the Summer Scholars supported by CHiPR.



Vlad Litvin, pictured here with Summer Scholars of CHiPR in early 1990s

In May 2013, we flew to Russia for Barbara's first visit, hosted by Svetlana and Yuriy Litvin. This was particularly significant for Barbara, who had been a double major in French and Russian at Elmira College in the 1960s. First stop was Chernogolovka, a science city northeast of Moscow, where we spent a long weekend, which included a family picnic at their dacha and tourism in Sergiev Posad [formerly Zagorsk which Bob had seen in 1971].



Svetlana and Barbara at the Litvin dacha outside of Chernogolovka.

I also visited the Institute of Experimental Mineralogy in Chernogolovka with Yuriy, and met the Director, Academician Vladimir Zharikov with whom I discussed some problems of high-pressure experimental geophysics and geochemistry.



Bob and Yuriy in front of 15th century monastery Trinita Lavra in ancient Zagorsk [also known as Sergiev Prosad].

Then Yuriy accompanied us to Moscow for a week during which we indulged in major sightseeing. Finally, Yuriy took us by train to St. Petersburg to see the Hermitage and the castles of Peter the Great and Catherine the Great. Last night was a special dinner in Moscow with Svetlana, Yuriy and their son Vlad.



Bob and Yuriy in front of St. Basil's Cathedral in Red Square in Moscow.



Yuriy and Barbara in front of Peter and Paul Cathedral in St. Petersburg.

Yuriy and Svetlana were often seen at scientific meetings in Europe in recent years, including the European High-Pressure Group [EHPRG] in Bayreuth-Germany, the European Geophysical Union [EGU] in Vienna-Austria, and the series of High-Pressure Mineral Physics Seminars [the 8th in the series in St. Malo-France in 2017].



Litvins and Liebermanns at the EHPRG meeting in Bayreuth in 2015.



2015. Svetlana Litvin and Barbara Liebermann in forest of L'Hermitage, Bayreuth, Germany during EHPRG meeting.



2017 in St. Malo, France at the 8th in the series of High-Pressure Mineral Physics Seminars. L to R. Bob Liebermann, Yuriy Litvin, Svetlana Litvin, Barbara Liebermann.