

## Koshliakov Zeta Functions and Modular Relations

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Nikolai Sergeevich Koshliakov was an outstanding Russian mathematician who made phenomenal contributions to number theory and differential equations. In the aftermath of World War II, he was one among the many scientists who were arrested on fabricated charges and incarcerated. Under extreme hardships while still in prison, Koshliakov (under a different name 'N. S. Sergeev') wrote two manuscripts out of which one was lost. Fortunately the second one was published in 1949 although, to the best of our knowledge, no one studied it until the last year when Prof. Atul Dixit and I started examining it in detail. This manuscript contains a complete theory of two interesting generalizations of the Riemann zeta function having their genesis in heat conduction and is truly a masterpiece! In this talk, we will discuss some of the contents of this manuscript and then proceed to give some new results (modular relations) that we have obtained in this theory. This is a joint work with Prof. Atul Dixit.