

# The Solution of the Most Ill- of All Ill-Posed Inverse Problems - Dimiter Zidarov's Legacy in Potetial theory, Gravimetry and Magnetometry in Bulgaria

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The mathematical theory of the solution of the Inverse problems in Potential theory starts with Newton's theorem. Tikhonov (1943) has invented his regularization method motivated by the Inverse Gravimetric problem. In the present lecture we will tell the story of the solution of Inverse potential problems in Gravimetry in Bulgaria, which is based on the theory of mother bodies and partial bubbling of Dimiter Zidarov. The reader may consult the two monographs, of 1968 and 1982, [1],[2]. The final numerical algorithm based on Zidarov's approach has been completed in 1986 by Stoyan Avdev [3]. One has to emphasize that without the theory of D. Zidarov about Graviequivalent bodies the numerical solution would not be possible. Just the general regularization approach of A. Tikhonov is not enough to have the complete solution. One of the biggest discoveries of Zidarov is the notion of Mother body, which is the basis for a well-posed "sub-problem" thanks to the method of partial balayage. His examples of mother bodies have become classical in the area, cf. [4], [5], [6].

## References

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