## = NOTES, CHRONICLES, INFORMATION



90th Anniversary of the Birth Vladimir Iosifovich Gurman

September 26, 2024 marks the 90th anniversary of the birth of Doctor of Technical Sciences, Professor Vladimir Iosifovich Gurman (September 26, 1934–June 8, 2016), a well-known Soviet and Russian scientist, a major specialist in the mathematical theory of optimal control and its applications, author and co-author of a number of articles published in the journal "Avtomatika i Telemekhanika" / "Automation and Remote Control" for many decades. Vladimir Iosifovich was a member of the editorial board of this journal. V.I. Gurman made a large contribution to the mathematical theory of optimal control and its applications, worked in universities and scientific institutions in different cities (Moscow, Irkutsk, Pereslavl-Zalessky, Ulan-Ude), prepared a number of candidates and doctors of sciences. The articles [1–5] are devoted to the research and teaching activities of Vladimir Iosifovich, and the articles [2, 5] list the publications where Vladimir Iosifovich is the author or a co-author.

More than 50 years ago, the books [6, 7] were published, where Vladimir Iosifovich is a co-author. These books give both fundamental results on the theory of optimal control and corresponding results on mathematical models of flight dynamics control (about Vadim Fedorovich Krotov, who is the first author, see [8]). In the subsequent years, the monographs [9] (1977), [10] (1985), [11] (1997) by Vladimir Iosifovich were published, as well as the books [12–17] co-authored. The works by Vladimir Iosifovich and his co-authors harmoniously combine different directions: on the transformation of optimal control problems, optimality conditions, optimization methods, analytical study of problems, mathematical modeling (in particular, ecological-economic problems in [10, § 5.5] in relation to the Baikal region, quantum control problems [10, § 5.4], [18]).

Still recently, Vladimir Iosifovich was an active organizer of the scientific symposia "Generalized Statements and Solutions of Control Problems" [19, 20]. The last articles were [21, 22], devoted to

important issues of the theory of optimal control. Vladimir Iosifovich will remain in the memory of the scientific community as one of the main creators of the theory of degenerate optimal control problems and, in the applied aspect, as one of the leading specialists on mathematical models of control in flight dynamics and on regional socio-ecological-economic systems. The bright memory of the hero of the anniversary will continue to be in the hearts of his students, colleagues, and followers. To young scientists who specialize in the theory of optimal control and its applications and have not yet read the works by V.I. Gurman, V.F. Krotov, we recommend to start with the book [7].

## REFERENCES

- 1. To the 80th anniversary of V.I. Gurman, *Avtomatika i Telemekhanika*, 2014, no. 9, pp. 156–157 (in Russian). https://www.mathnet.ru/eng/at14127
- 2. In memory of Professor Vladimir Iosifovich Gurman, *Program Systems: Theory and Applications*, 2016, vol. 7, no. 3, pp. 109–132 (in Russian). https://www.mathnet.ru/eng/ps227
- 3. Gurman Vladimir Iosifovich (26.09.1934–08.06.2016), Bull. Buryat State Univ. Math. Inform., 2016, no. 3, pp. 100–102 (in Russian). https://vestnikmi.bsu.ru/content/articles/554.pdf
- 4. Arguchintsev, A.V., Bychkov, I.V., Baturin, V.A., et al., In memory of Professor Vladimir Iosifovich Gurman (1934–2016), *Bull. Irkutsk State Univ. Ser. Math.*, 2017, vol. 19, pp. 1–5 (in Russian). https://www.mathnet.ru/eng/iigum283
- 5. Dykhta, V.A., Scientific achievements of professor V.I. Gurman, *Bull. Irkutsk State Univ. Ser. Math.*, 2017, vol. 19, pp. 6–21 (in Russian). https://www.mathnet.ru/eng/iigum284
- Krotov, V.F., Bukreev, V.Z., and Gurman, V.I., Novye metody variatsionnogo ischisleniya v dinamike poleta (New Variational Methods in Flight Dynamics), Moscow: Mashinostroyeniye, 1969 (in Russian). https://search.rsl.ru/en/record/01007419460
  Krotov, V.F., Bukreev, V.Z., and Gurman, V.I., New Variational Methods in Flight Dynamics / Transl. from Russian, Jerusalem: Israel Program for Scientific Translations, 1971.
- 7. Krotov, V.F. and Gurman, V.I., *Metody i zadachi optimal'nogo upravlenii* (Methods and Problems of Optimal Control), Moscow: Nauka, 1973 (in Russian). https://search.rsl.ru/en/record/01007419459
- 8. Khrustalev, M.M., On the 90th anniversary of V.F. Krotov birth, *Avtomatika i Telemekhanika*, 2022, no 5, pp. 164–168 (in Russian). https://www.mathnet.ru/eng/at15961
- 9. Gurman, V.I., *Vyrozhdennye zadachi optimal'nogo upravleniya* (Degenerate Optimal Control Problems), Moscow: Nauka, 1977 (in Russian). https://search.rsl.ru/en/record/01007669258
- 10. Gurman, V.I., *Printsip rasshireniya v zadachakh upravleniya* (Extension Principle in Control Problems), Moscow: Nauka, 1985 (in Russian). https://search.rsl.ru/en/record/01001263307
- 11. Gurman, V.I., *Printsip rasshireniya v zadachakh upravleniya. 2-e izd., pererab. i dop.* (Extension Principle in Control Problems. 2nd Edition, Revised and Added), Moscow: Nauka, Fizmatlit, 1997 (in Russian). https://search.rsl.ru/en/record/01001794491
- 12. Gurman, V.I., Baturin, V.A., and Rasina, I.V., *Priblizhennye metody optimal'nogo upravleniya* (Approximate Methods of Optimal Control), Irkutsk: Izdat. Irkutsk Univ., 1983 (in Russian). https://search.rsl.ru/en/record/01001196660
- 13. Gurman, V.I., Baturin, V.A., Danilina, E.V., et al., *Novye metody uluchsheniya upravlyaemykh protsessov* (New Methods for Improving Control Processes), Moskalenko, A.I., Ed., Novosibirsk: Nauka: Siberian Branch, 1987 (in Russian).
- Gurman, V.I., Baturin, V.A., Moskalenko, A.I., et al., Metody uluchsheniya v vychislitel'nom eksperimente (Methods of Improvement in Computational Experiment), Dykhta, V.A. and Tyatyushkin, A.I., Eds., Novosibirsk: Nauka: Siberian Branch, 1988 (in Russian). https://search.rsl.ru/en/record/01001415425

- 15. Baturin, V.A., Dykhta, V.A., Moskalenko, A.I., et al., Metody resheniya zadach teorii upravleniya na osnove printsipa rasshireniya (Methods for Solving Problems of the Control Theory Based on the Extension Principle), Gurman, V.I. and Konstantinov, G.N., Eds., Novosibirsk: Nauka, 1990 (in Russian). https://search.rsl.ru/en/record/01001574445
- Balatsky, O.F., Belyshev, D.V., Gurman, V.I., et al., Modelirovanie sotsio-ekologo-ekonomicheskoi sistemy regiona (Modeling of Region Socio-Ecological-Economic System), Gurman, V.I. and Ryumina, E.V., Eds., Moscow: Nauka, 2003 (in Russian). https://search.rsl.ru/en/record/01002400276
- 17. Gurman, V.I. and Trushkova, E.A., *Prakticheskie metody optimizatsii: Uchebno-metodicheskoe posobie* (Practical Optimization Methods: Study Guide), Pereslavl-Zalessky: University of Pereslavl, 2009 (in Russian). https://search.rsl.ru/en/record/01004650750
- 18. Gurman, V.I. and Rasina, I.V., Optimization of processes in a spin chain, *Autom. Remote Control*, 2014, vol. 75, no. 12, pp. 2212–2216. https://doi.org/10.1134/S0005117914120108
- 19. Buldaev, A.S. and Gurman, V.I., Generalized statements and solutions of control problems, *Autom. Remote Control*, 2011, vol. 72, no. 6, pp. 1141–1142. https://doi.org/10.1134/S0005117911060014
- 20. Rubinovich, E.Ya. and Morzhin, O.V., The VI International scientific workshop "Generalized statements and solutions of control problems" (GSSCP-2012), *Avtomatika i Telemekhanika*, 2013, no. 12, pp. 3–4 (in Russian). https://www.mathnet.ru/eng/at6167
- 21. Gurman, V.I., On certain problems in optimal control theory, *Bull. Irkutsk State Univ. Ser. Math.*, 2017, vol. 19, pp. 26–43 (in Russian). https://www.mathnet.ru/eng/iigum285
- 22. Gurman, V.I. and Khrustalev, M.M., Abnormality in the theory of necessary optimality conditions, *Bull. Irkutsk State Univ. Ser. Math.*, 2017, vol. 19, pp. 44–61 (in Russian). https://www.mathnet.ru/eng/iigum286

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