

Перечень публикаций официального оппонента  
**Рывкина Александра Михайловича,**  
соответствующих специальности 05.13.18

**Публикации в Перечне рецензируемых научных изданиях, в которых должны быть опубликованы основные результаты диссертаций на соискание ученой степени кандидата наук, на соискание ученой степени доктора наук:**

**Публикации в изданиях, включенных в международные базы цитирования:**

1. Ryvkin, Alexander, and Nikita Markov. "Modeling of calcium sparks in heart cells. 2D calcium diffusion problem." *2018 Ural Symposium on Biomedical Engineering, Radioelectronics and Information Technology (USBREIT)*. IEEE, 2018.
2. Markov, N.S. and Ryvkin, A.M., 2018, July. The Peculiarities of Calcium Sparks Formation in Cardiac Cells in Silico. In *International conference in honor of the 90th Birthday of Constantin Corduneanu, Ekaterinburg, Russia* (pp. 253-264). Springer, Cham.
3. Ryvkin, A. and Markov, N., 2019, April. Age-related Calcium Sparks Alterations in Heart Pacemaker Cells. Computer Modeling. In *2019 Ural Symposium on Biomedical Engineering, Radioelectronics and Information Technology (USBREIT)* (pp. 163-166). IEEE.
4. Ryvkin, A. and Markov, N., 2018, September. Ryanodine Receptors Coupling Causes a Calcium Leak in Cardiac Cell. In *2018 Computing in Cardiology Conference (CinC)* (Vol. 45, pp. 1-4). IEEE.
5. Markov, N. and Ryvkin, A., 2020, May. Simulation of the Submembrane Calcium Diffusion in Cardiac Cells. In *2020 Ural Symposium on Biomedical Engineering, Radioelectronics and Information Technology (USBREIT)* (pp. 207-210). IEEE.
6. Moskvin, A., Ryvkin, A., Zorin, N., Soulim, K., Yaparov, B., Solovyova, O. and Markhasin, V., 2015. Electron-Conformational Transformations in Nanoscopic RyR2 Channels Govern both the Heart's Contraction and Beating. *Biophysical Journal*, 108(2), p.107a.
7. Moskvin, A.S., Iaparov, B.I., Ryvkin, A.M., Solovyova, O.E. and Markhasin, V.S., 2015. Electron-conformational transformations govern the temperature dependence of the cardiac ryanodine receptor gating. *JETP letters*, 102(1), pp.62-68.
8. Ryvkin, A.M., Zorin, N.M., Moskvin, A.S., Solovyova, O.E. and Markhasin, V.S., 2015. The interaction of the membrane and calcium oscillators in cardiac pacemaker cells: Mathematical modeling. *Biophysics*, 60(6), pp.946-952.
9. Khokhlova, A.D., Syunyaev, R.A., Ryvkin, A.M., Shmarko, D.V., Gonotkov, M.A., Lebedeva, E.A., Golovko, V.A., Moskvin, A.S., Solovyova, O.E. and Aliev, R.R., 2016. The effects of intracellular calcium dynamics on the electrical activity of the cells of the sinoatrial node. *Biophysics*, 61(6), pp.893-900.
10. Ryvkin, A., Markov, N.: Calcium sparks in cardiac cells in silico. *FEBS J.* 284, 318–318 (2017)