Авторска справка за приносния характер на трудовете

на Калина Красимирова Димитрова

за защита на дисертация на тема Търсене на нови леки частици при анихилация на ускорени позитрони

за придобиване на научно-образователна степен „доктор“

по Физически науки

към Физически факултет на СУ „Св. Климент Охридски“

Таблица 1. Сравнителна таблица с препоръчителни изисквания на ФзФ.

Препоръчителни критерии на ФзФ	Кандидат
Минимум 2 публикации, от които поне 1 публикация от група I или от група II	1.Using Artificial Intelligence in the Reconstruction of Signals from the PADME Electromagnetic Calorimeter, K. Dimitrova et al. 2022 Instruments 6, 46 **(Q2)** 2. Machine learning assisted reconstruction of positron-on-target annihilation events in the PADME experiment, K. Dimitrova et al. 2024 J. Phys.: Conf. Ser. 2794 012001 **(Q4)** 3. Pattern recognition and signal parameters extraction using machine learning methods, K. Dimitrova et al 2023 J. Phys.: Conf. Ser. 2668 012001 **(Q4)** 4. Development and explainability of models for machine-learning-based reconstruction of signals in particle detectors, K. Dimitrova, V. Kozhuharov, P. Petkov 2025 Particles 8, 48 **(Q1)** 5. Applicability evaluation of selected xAI methods for machine learning algorithms for signal parameters extraction, K. Dimitrova, V. Kozhuharov, P. Petkov 2025 J. Phys.: Conf. Ser. 3002 012005 **(Q4)** 6. New Light Particle Searches with PADME, K. Dimitrova et al 2025 Acta Phys. Pol. B Proc. Suppl. 18, 4-A3 **(Q4)** 7. Searching for the Dark Photon with PADME, K. Dimitrova et al 2026 PoS COSMICWISPers2025 063 **(Q4)**
Публикации със съществен принос - в поне 1 публикация от група I или от група II	1.Using Artificial Intelligence in the Reconstruction of Signals from the PADME Electromagnetic Calorimeter, K. Dimitrova et al. 2022 Instruments 6, 46 **(Q2)** 2. Machine learning assisted reconstruction of positron-on-target annihilation events in the PADME experiment, K. Dimitrova et al. 2024 J. Phys.: Conf. Ser. 2794 012001 **(Q4)** 3. Pattern recognition and signal parameters extraction using machine learning methods, K. Dimitrova et al 2023 J. Phys.: Conf. Ser. 2668 012001 **(Q4)** 4. Development and explainability of models for machine-learning-based reconstruction of signals in particle detectors, K. Dimitrova, V. Kozhuharov, P. Petkov 2025 Particles 8, 48 **(Q1)**

	5. Applicability evaluation of selected xAI methods for machine learning algorithms for signal parameters extraction, K. Dimitrova, V. Kozhuharov, P. Petkov 2025 J. Phys.: Conf. Ser. 3002 012005 **(Q4)** 6. New Light Particle Searches with PADME, K. Dimitrova et al 2025 Acta Phys. Pol. B Proc. Suppl. 18, 4-A3 **(Q4)** 7. Searching for the Dark Photon with PADME, K. Dimitrova et al 2026 PoS COSMICWISPers2025 063 **(Q4)**
- Поне една конференция с доклад или постер	1. 5th Inter-experiment Machine Learning Workshop, CERN, 9 - 13 May, 2022: Application of artificial intelligence in the reconstruction of signals from the PADME electromagnetic calorimeter **(доклад)** 2. 19th International Conference on Calorimetry in Particle Physics (CALOR2022), Brighton, 16 - 20 May 2022: Using artificial intelligence in the reconstruction of signals from the PADME electromagnetic calorimeter **(доклад)** 3. 3rd National Forum on Contemporary Space Research, Sofia, Bulgaria, 10 – 12 November 2022: Application of machine learning for the identification of signals in time series **(доклад)** 4. 4th National Forum on Contemporary Space Research, Sofia, Bulgaria, 19 – 20 October 2023: Machine learning assisted reconstruction of positron-on-target annihilation events **(доклад)** 5. 2nd Workshop on Soliton Theory, Nonlinear Dynamics and Machine Learning, Varna, Bulgaria, 16 – 21 August 2024: Applicability evaluation of selected xAI methods for machine learning algorithms for signal parameters extraction **(доклад)** 6. Workshop at 1GeV scale: From mesons to axions, Krakow, Poland, 19 – 20 September 2024: New light particle searches with PADME **(доклад)** 7. 4th MODE Workshop on Differentiable Programming for Experiment Design, Valencia, Spain, 23 – 25 September 2024: Development and explainability of models for machine-learning-based signal reconstruction **(постер)** 8. 4-ти Национален конгрес по физически науки, София, България, 07 – 09 октомври 2024 г.: Reconstruction of signals in the PADME Electromagnetic calorimeter using machine learning methods **(доклад)** 9. 5th National Forum on Contemporary Space Research, Sofia, Bulgaria, 22 – 24 October 2024: Cluster Reconstruction in Electromagnetic Calorimeters Using Machine Learning Methods **(постер)** 10. 3rd Training School COST Action COSMIC WISPers (CA21106), Annecy, France, 16 – 19 September 2025: Searching for the Dark Photon with PADME **(доклад)** 11. 39th Les Rencontres de Physique de la Vallée d'Aoste, La Thuile, Italy, 01 - 07 March 2026: Searching for a new light boson with PADME **(доклад)** 12. 80 години катедра Атомна физика, София, България, 16 – 18 април 2026: Searching for new light particles with PADME **(доклад)**

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гр. София / Калина Димитрова /