

## 裴永珍教授简介

裴永珍，女，1971年出生，教授，博士，博士生导师，数学科学学院常务副院长。主要从事混杂动力系统的优化与控制、数据处理和分析研究，机发展了切换系统的梯度计算、参数和控制变量优化及统计推断等方法，在基因调控和生物控制等领域取得一系列成果。发表论文100余篇，被SCI检索80篇。近5年来，主持国家自然科学基金3项，参加国家自然科学基金2项，参加完成市级项目3项，主持完成横向课题3项。获天津市教指导的硕士研究生获校级优秀毕业论文3人次，市级优秀毕业论文1人次。荣获天津市教学名师、入选“天津市高校学科领军人才培养计划”、荣获天津工业大学“我最喜爱的研究生导师”荣誉称号。

研究方向为动力系统、机器学习、生物信息、数据分析、优化与控制、混杂系统的最优控制、最优化计算方法。电子邮箱为 yzhpei@tiangong.edu.cn。

### 国家级项目信息：

项目来源	名称	起止时间	资助经费
国家自然科学基金面上项目	基于飞蝗几丁质酶基因 RNA 干扰机制的动力学模型研究	202001-202312	62 万元
国家自然科学基金面上项目	农作物害虫综合优化治理的数学建模及应用	201501-201812	70 万元
国家自然科学基金青年项目	宠物与人共患弓形虫病的数学模型研究与应用	201201-201412	24 万元
国家自然科学基金青年项目	潘阳湖湿地候鸟保护的数学模型应用与研究	201001-201212	25 万元

### 社会兼职：

目前担任国家自然科学基金评审专家，为《Applied Mathematical Modelling》、《Commun Nonlinear Sci Numer Simulat》、《系统科学与数学》等国内外10多种期刊审稿人，《Communications in Mathematical Biology and Neuroscience》特刊的首席客座编辑，美国《数学评论》应邀评论员。中国生物数学学会常务理事，天津市工业与应用数学学会副理事长。

### 公开发表的主要作品：

1. **Yongzhen Peia,\***, Miaomiao Chena, Xiyin Lianga, Changguo Lib ; Model-based on fishery management systems with selective harvest policies , Mathematics and Computers in Simulation, 2019, 156: 377-395.

2. **Pei Yongzhen<sup>##</sup>\***, Hongfu Yang, Qimin Zhang, Fangfang Shen, Asymptotic mean-square boundedness of the numerical solutions of stochastic age-dependent population equations with Poisson jumps. *Applied Mathematics and Computation* 320 (2018) 524-534
3. **Pei Yongzhen<sup>##</sup>\***, Chen Miaomiao, Liang Xiyin, Li Changguo, Zhu Meixia. Optimizing pulse timings and amounts of biological interventions for a pest regulation model, *Nonlinear Analysis: Hybrid Systems*, 2018, 27:353-365.
4. **Pei Yongzhen<sup>##</sup>\***, Li Shuping, Gao Shujing, Zhongmin. Pulse vaccination of an epidemic model with two parallel infectious stages and time delays. *Mathematics & Computers in Simulation*, 2017, 142.
5. **Pei Yongzhen<sup>#</sup>**, Li Changguo<sup>\*</sup>, Liang Xiyin. Optimal therapies of a virus replication model with pharmacological delays based on RTIs and PIs. *Journal of Physics A Mathematical & Theoretical*, 2017, 50(45).
6. **Pei Yongzhen<sup>##</sup>\***, Ji Xuehui, Li Changguo, Gao Shujing. Dynamics of a model of Toxoplasmosis disease in cat and human with varying size populations. *Mathematics & Computers in Simulation*, 2018, 144(144):52-59.
7. **Pei Yongzhen<sup>##</sup>\***, Chen Miaomiao, Liang Xiyin, Zhu Meixia, Lv Yunfei. Optimal control problem in an epidemic disease SIS model with stages and delays. *International Journal of Biomathematics*, 2016, 09(5):131-152.
8. **Pei Yongzhen<sup>##</sup>\***, Li Changguo, WuQianyong. Successive vaccination and difference in immunity of a delay SIR model with a general incidence rate. *Abstract and Applied Analysis*, 2014, 2014(4):1-10.
9. **Pei Yongzhen<sup>##</sup>\***, Li Changguo, Fan Shunhou. A mathematical model of a three species prey-predator system with impulsive control and Holling functional response. *Applied Mathematics and Computation*, 2013 (219): 10945-10955.
10. **Pei Yongzhen<sup>##</sup>\***, Ye Liu, Changguo Li, Dynamic study of mathematical models on antibiotics and immunologic adjuvant against Toxoplasmosis, *WSEAS Transactions on Mathematics*, Volume: 11 , Issue: 11 pp: 1018-27, 2012 (EI).
11. **Pei Yongzhen<sup>##</sup>\***, Yunfei Lv, Evolutionary consequences of harvesting for a two-zooplankton one-Phytoplankton system, *Applied Mathematical Modelling* , Volume: 36 , Issue: 4, pp: 1752-65 , 2012(SCI).
12. **Pei Yongzhen<sup>##</sup>\***, Shuping Li, Changguo Li, The effect of constant and pulse vaccination on an SIR epidemic model with infectious period , *Applied Mathematical Modelling* Volume 35, Issue: 8 pp:3866-3878, 2011(SCI).
13. **Pei Yongzhen<sup>##</sup>\***, Haiyong Wang, Rich dynamical behaviors of a predator-prey system with state feedback control and a general functional responses, *WSEAS Transactions on Mathematics* , Volume: 10, Issue: 11 , pp: 387-97, 2011 (EI).
14. **Pei Yongzhen<sup>##</sup>\***, Li Shuping, Li Changguo, Effect of delay on a predator-prey model with parasitic infection , *Nonlinear Dynamics* , Volume: 63, Issue: 3 , pp: 311-321, 2011(SCI).
15. **Pei Yongzhen<sup>##</sup>\***, Guo Min, Li Changguo, A delay digestion process with application in a three-species ecosystem, *Communications In Nonlinear Science And Numerical Simulation* , Volume: 16 , Issue: 11, pp: 4365-4378, 2011(SCI).

- 16.裴永珍<sup>\*#</sup>,王慧娜,李长国,高淑京,一类具有 Logistic 增长和 HollingII 类功能反应的免疫模型,数学学报, 2 (52) (2011): 1-10.
- 17.Yongzhen Pei<sup>\*#</sup>, Xuehui Ji, Changguo Li, Pest regulation by means of continuous and impulsive nonlinear controls , Mathematical and Computer Modelling , Volume: 51 , Issue: 5-6, pp: 810-822,2010 (SCI)
- 18.Yongzhen Pei<sup>\*#</sup>, Shaoying Liu, Shujing Gao, Shuping Li, Changguo Li, A delayed SEIQR epidemic model with pulse vaccination and the quarantine measure, Computers and Mathematics with Applications, 58 (2009): 135-145. (SCI)
- 19.Yongzhen Pei<sup>\*#</sup>, Shaoying Liu, Lansun Chen, Chunhua Wang, Two different vaccination strategies in an SIR epidemic model with saturated infectious force, International journal of biomathematics 2(1) (2008):147-160. (SCI)
- 20.Yongzhen Pei<sup>\*#</sup>, Yong Yang, Changguo Li, Bifurcation of a mutualistic system with variable coefficients and impulsive effects. International Journal of Biomathematics, 2(3) (2009): 363-375. (SCI)
- 21.Yongzhen Pei<sup>\*#</sup>, Yong Yang, Changguo Li, Lansun Chen, Pest management of a prey-predator model with sexual favoritism, Mathematical Medicine and Biology, 26(2009): 97-115.(SCI)
- 22.Yongzhen Pei<sup>\*#</sup>, Changguo Li, Lansun Chen, Continuous and impulsive harvesting strategies in a stage-structured predator-prey model with time delay, Mathematics and Computers in Simulation, 79 (2009): 2994-3008. (SCI)
- 23.Yongzhen Pei<sup>\*#</sup>, Shaoying Liu, Changguo Li, Complex dynamics of an impulsive control system in which predator species share a common prey, Journal of Nonlinear Science, 19(2009): 249-266. (SCI)
- 24.Yongzhen Pei<sup>\*#</sup>, Yong Yang,Changguo Li, Dynamics of an impulsive control system which prey species share a common predator, Chaos, Solitons and Fractals , 41 (2009): 2429-2436.(SCI)
- 25.Yongzhen Pei<sup>\*#</sup>, Changguo Li, A kind of algae growth models with nonlinear control and saturated substrate uptake rate in the chemostat, 生物数学学报, 24(2) (2009): 1-6.
- 26.Yongzhen Pei<sup>\*#</sup>, Changguo Li, A prey-predator system with parasitic infection and recovery, 生物数学学报, 25(1)(2010): 1-5.
- 27.Yongzhen Pei<sup>\*#</sup>, Changguo Li, Lansun Chen, Global Attractivity of a Positive Periodic Solution a Delay Logistic Population Model with Impulses, 数学杂志, 1 (2010): 10-14.
- 28.裴永珍<sup>\*#</sup>,李长国,姬雪晖,陈兰荪,两类不同免疫策略下的 SIR 流行病模型,大连理工大学学报, 49 (3) (2009) : 459-462. (EI)
- 29.裴永珍<sup>\*#</sup>,刘少英,李长国,高淑京,具有多时滞和垂直传染的脉冲接种流行病模型,数学年刊, 30A (5) (2009): 669-676
- 30.Yongzhen Pei<sup>\*#</sup>, Guangzhao Zeng, Lansun Chen, Species extinction and permanence in a prey-predator model with two-type functional responses and impulsive biological control, Nonlinear Dynamics, 52(2008): 71-81. (SCI)
- 31.Yongzhen Pei<sup>\*#</sup>, Lansun Chen, QingRui Zhang, Changguo Li, Extinction and permanence of one-prey multi-predators of Holling type II function response

- system with impulsive biological control, *Journal of Theoretical Biology*, 235 (2005): 495–503.(SCI)
32. **Yongzhen Pei<sup>\*#</sup>**, Changguo Li, Lansun Chen, Chunhua Wang, Complex dynamics of one-prey multi-predator system with defensive ability of prey and impulsive biological control on predators, *Advances in Complex Systems*, 4(8)(2005): 483–495.(SCI)
33. **Yongzhen Pei<sup>\*#</sup>**, Changguo Li, Lansun Chen, Chunhua Wang, Impulsive selective harvesting in a logistic fishery model with time delay, *Journal of Biological Systems*, 1(14)(2006): 91–99.(SCI)

### 仅通讯作者

1. Zhu Meixia, **Yongzhen Pei<sup>\*</sup>**, Ye Ming and Li Changguo, Quantitative Evaluation of Impacts of Likelihood Functions on Bayesian Parametric Estimation of Epidemic Models, *Statistics and Its Interface*, print
2. Ying Song, **Yongzhen Pei<sup>\*</sup>**, Miaomiao Chen and Meixia Zhu. Translation, solving scheme, and implementation of a periodic and optimal impulsive state control problem, *Advances in Difference Equations* (2018) 2018:93
3. Changguo Li, **Yongzhen Pei<sup>\*</sup>**, Meixia Zhu, and Yue Deng, Parameter Estimation on a Stochastic SIR Model with Media Coverage *Discrete Dynamics in Nature and Society*, Volume 2018, Article ID 3187807, 7 pages
4. Dandan Fang, **Yongzhen Pei<sup>\*</sup>**, Yunfei Lv ·Lansun Chen. Periodicity induced by state feedback controls and driven by disparate dynamics of a herbivore–plankton model with cannibalism. *Nonlinear Dynamics*,(2017) 90:2657–2672. (SCI)
5. Lv Y, **Yongzhen Pei<sup>\*</sup>**, Yuan R. Hopf bifurcation and global stability of a diffusive Gause-type predator–prey models. *Computers & Mathematics with Applications*, 2016, 72(10):2620-2635. (SCI)
6. Chen M, **Yongzhen Pei<sup>\*</sup>**, Liang X, .Changguo Li<sup>3</sup>, Meixia Zhu<sup>2</sup> and Yunfei Lv , A hybrid optimization problem at characteristic times and its application in agroecological system[J]. *Advances in Difference Equations*, 2016, 2016(1):1-13. (SCI)
7. Yunfei LV, **Yongzhen Pei<sup>\*</sup>**, Shujing Gao, Changguo Li, Harvesting of a phytoplankton-zooplankton model, *Nonlinear Analysis: Real World Applications*, 11(5) (2010): 3608-3619. (SCI)
8. Shuping Li, **Yongzhen Pei<sup>\*</sup>**, Changguo Li, Shujing Gao, Stability analysis for a single-species chemostat model with age structure and contribution of population to resource, *Journal of Mathematical Chemistry*, (2010)47:111–122.(SCI)
9. Xuehui Ji, **Yongzhen Pei<sup>\*</sup>**, Changguo Li, Two patterns of recruitment in an epidemic model with difference in immunity of individuals, *Nonlinear Analysis: Real World Applications*, 11 (2010): 2078-2090. (SCI)
10. Shaoying Liu, **Yongzhen Pei<sup>\*</sup>**, Lansun Chen, Changguo Li, Three kinds of TVS in a SIR epidemic model with saturated infectious force and vertical transmission, *Applied Mathematical Modelling*, 33 (2009):1923-1932. (SCI)

11. Hongyue pei, **Yongzhen pei\***, Xiyin liang, Meixia Zhu, Optimal control of a computer virus model with network attacks, *Commun. Math. Biol. Neurosci.* 2016, 2016:17
12. Meixia zhu, **Yongzhen pei\***, Changguo li, A review on the development of individual-based model in ecology, *Commun. Math. Biol. Neurosci.* 2016, 2016:16
13. Yunfei Lv\*#, Tongtong Li, Yongzhen Pei\*, Rong Yuan, A complete analysis of the global dynamics of a diffusive predator and toxic prey model, *Applied Mathematics and Computation*, 2016, 291: 182–196

其他

1. Xiyin Liang\*, Yongzhen Pei, Meixia Zhu, Yunfei Lv. Multiple kinds of optimal impulse control strategies on plant-pest-predator model with eco-epidemiology. *Applied Mathematics & Computation*, *Applied Mathematics and Computation* 287–288 (2016) 1–11 . (SCI)
- 2 JianguoTan\*, WeiweiMen, YongzhenPeia, YongfengGuo Construction of positivity preserving numerical method for stochastic age-dependent population equations. *Applied Mathematics & Computation*, 2017, 293:57-64. Volume 293, 15 January 2017, Pages 57-64
- 3 Tan J, Rathinasamy A, Pei Y. Convergence of the split-step theta-method for stochastic age-dependent population equations with Poisson jumps. *Applied Mathematics & Computation*, 2015, 254(C):305-317
4. Yunfei Lv\*#, Rong Yuan, Yongzhen Pei, Tongtong Li, Global stability of a competitive model with state-dependent delay, *J. Dynamics And Differential Equations*. 2017, 29 (2): 501-521
5. Yunfei Lv\*#, Rong Yuan, Yongzhen Pei, Smoothness of semiflows for parabolic partial differential equations with state-dependent delay, *J. Differential Equations*, 2016, 260(7): 6201-6231
6. Yunfei Lv\*#, Rong Yuan, Yuan He, Wavefronts of a stage structured model with state-dependent delay, *Discrete and Continuous Dynamical Systems. Series A*, 2015, 35 (10) : 4931-4954
7. Yunfei Lv\*#, Rong Yuan\*, Global stability and wavefronts in a cooperation model with state-dependent time delay, *J. Mathematical Analysis and Applications*, 2014, 415 (2): 543-573
8. Yunfei Lv#, Rong Yuan\*, Yongzhen Pei, The impact of predation on the coexistence and competitive exclusion of pathogens in prey, *Mathematical Biosciences*, 2014, 251: 16-29.
9. Yunfei Lv#, Rong Yuan\*, Yongzhen Pei, Turing pattern formation in a three species model with generalist predator and cross-diffusion, *Nonlinear Analysis*, 2013, 85: 214-232.
10. Yunfei Lv\*#, Rong Yuan, Yongzhen Pei, A prey-predator model with harvesting for fishery resource with reserve area, *Applied Mathematical Modelling*, 2013, 37 (5): 3048–3062.
11. Yunfei Lv#, Rong Yuan\*, Yongzhen Pei, Two types of predator–prey models with harvesting: Non-smooth and non-continuous, *J. Computational and Applied Mathematics*, 2013, 250: 122–142.

