

# Yiyang Chen

NO.94 Weijin Road, Nankai District, Tianjin, China, 300071

• +86 18737183786 • yychen@mail.nankai.edu.cn / yychen.nku@outlook.com •

## EDUCATION

Nankai University, NKU

Tianjin, China

B.S. (Hons) in Physics, GPA: 85.82/100

09/2017- 07/2021

Boling Class of Physics, supported by The Pilot Scheme of Talent Training in Basic Sciences

- **SELECTED COURSES:** Molecular Biophysics (94), Nanophysics (90), Biomedical Physics (97), Thermodynamics and Statistical Physics (90), Medical Cell Biology (87), Biochemistry (85)
- **HONORS:** First Prize, Nankai Physics Tournament, NKPT (05/2018)  
Boling Scholarship, NKU (10/2017)
- **SKILLS:** Matlab, C++, Mathematica, LaTeX

## ACADEMIC ACTIVITIES

Medical Physics Summer School, Duke Kunshan University, DKU

Kunshan, China

- **COURSES:** Modern Diagnostic Imaging Physics, Radiation Physics  
Radiation Therapy Physics, Radiation Protection Physics, Special Program of IGRT / SRS / SBRT

08/09/2020-08/14/2020

The Physics of Life Online Summer School, Princeton University

06/15/2020- 08/03/2020

- Topics including *Bacterial Motility and Pattern Formation*, *Multicellular Structure Formation in 3D*, *Cellular Motility in Complex Environments*, *Intracellular Phase Separation*, *Statistical Mechanics Approaches to Biological Physics*, *Brains and Behavior in Simple Organisms*, *How the Brain Interprets Complex Signals*, *Statistical Mechanics of Machine Learning* (Link: <https://biophysics.princeton.edu/cpbfsommerschool2020>)

## MEMBERSHIP

Student Member, the Optical Society of America (OSA)

04/2018-03/2020

- Held seminars or talks given by the distinguished professors and graduate students
- Connected with student chapters at Tsinghua University, Peking University and other institutions

## RESEARCH EXPERIENCES

Immunofluorescent Biomarker for Zebrafish Somitogenesis and Single-cell Oscillation

Ann Arbor, MI

Research Assistant

07/2019-09/2019

Department of Biophysics, University of Michigan, Ann Arbor

Supervisor: Qiong Yang

- Developed two-color immunofluorescent protocols for *Ntla* and *Tbx16* in both zebrafish embryos and cell dispersals to identify the types of oscillating cells and non-oscillatory cells removed from the tailbud
- Determined different experimental conditions for embryo and cell dispersion systems after continuous trails
- Distinguished oscillating cells in different phenotypes: PSM, Progenitor, and Somite by the common images and Z-stack images taken by confocal microscope
- Left the images with good experiment results for lab use

Sorting Human Erythrocytes in Different Life Stages based on Microfluidic Technology

Tianjin, China

Project Leader, National College Students Innovation and Entrepreneurship Training Program

04/2019-present

School of Physics, NKU

Supervisor: Leiting Pan

- Investigated the influence of erythrocyte aging process on the deformability decrease
- Conducted human erythrocyte deformability measuring and hydrodynamic cell sorting based on microfluidic channels
- Artificially controlled the life stages by storing *in vitro* and processed the erythrocyte by H<sub>2</sub>O<sub>2</sub> treatment to change the erythrocyte deformability and prepare for the chip test of cell sorting
- Revised and designed the microfluidic ratchet chip to complete the cell sorting
- Won the first prize in the program assessment conducted by the School of Physics

**Property Research of Human Erythrocyte Skeleton and Membrane Protein CD47 Based on Stochastic Optics Reconstruction Microscopy (STORM)**

Tianjin, China

*Research Assistant*

07/2018-09/2018

School of Physics, NKU

*Supervisor: Leiting Pan*

- Accepted the basic training on STORM imaging, immunofluorescent experiments and Matlab algorithms
- Assisted Ph.D. students in analyzing the raw data of CD47 protein diffusion, and optimizing algorithms and parameters to reduce the difference between the processed image and the original experimental data

**COURSE PROJECT**

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**Light Transmission in Sub-wavelength Dielectric Waveguide**

03/2018-06/2018

**Study and Discussion of Physics 4-2, NKU**

*Professor: Qiang Wu*

*Supervisor: Qian Sun*

- Investigated plasmon transmission on the surface of the metallic waveguide and light transmission mode and light field distribution in the anisotropic sub-wavelength waveguide
- Researched theories and simulated anisotropic cladding's effect on decreasing the loss brought by evanescent wave

**SELECTED POSTER**

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*Immunofluorescent Biomarkers for Distinguishing Cell Phenotypes in Zebrafish Somitogenesis and Autonomous Cellular Oscillators*

Conference Poster of APS March Meeting 2020

**TEACHING EXPERIENCE**

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**Basic Physics III and IV, NKU**

Tianjin, China

**Teaching Assistant, Professor: Jianghong Yao**

09/2019-01/2020

- Assisted the professor in marking homework and exams, explaining homework exercises, and answering students' questions during tutorials and the review classes