CURRICULUM VITAE

JACKY JIA WEI CHONG

Last Update: May 1, 2022

Research Interest

Dispersive PDEs, harmonic analysis, many-body quantum physics.

Education

University of California, San Diego   B.S. Mathematics   June 2012
University of Maryland, College Park   Ph.D. Mathematics   July 2019
Ph.D. Advisors: Manoussous Grillakis, Matei Machedon
Thesis: *Application of Dispersive PDE Techniques to the Studies of the Hartree–Fock–Bogoliubov System for Bosons.*

Citizenship

USA

Preprints and Publications

1. *Uniform in N Global Well-posedness of the Time-Dependent Hartree–Fock–Bogoliubov Equations in $\mathbb{R}^{1+1}$* (2017) arXiv:1704.00955. *Letters in Mathematical Physics.*

2. *Dynamics of Large Boson Systems with Attractive Interaction and a Derivation of the Cubic Focusing NLS in $\mathbb{R}^3$* (2020) arXiv:1608.01615 *Journal of Mathematical Physics.*

3. *Global estimates for the Hartree–Fock–Bogoliubov equations* (2020) arXiv:2008.01753 *Communication in Partial Differential Equations* (with Manoussos Grillakis, Matei Machedon, Zehua Zhao)

4. *Dynamical Hartree–Fock–Bogoliubov Approximation of Interacting Bosons* (2020) arXiv:1711.00610 *Annales of Henri Poincaré* (with Zehua Zhao)

5. *From Many-Body Quantum Dynamics to the Hartree–Fock and Vlasov equations with Singular potentials* (2021) arXiv:2103.10946 (with Laurent Lafleche and Chiara Saffirio)

6. *Global-in-time semiclassical regularity for the Hartree–Fock equation* (2022) arXiv:2202.13998 (with Laurent Lafleche and Chiara Saffirio)

7. *Global uniform in N estimates for solutions of a system of Hartree–Fock–Bogoliubov type in the case $\beta < 1$* (2022) arXiv:2203.05447 (with Xin Dong, Manoussos Grillakis, Matei Machedon, Zehua Zhao)

8. *On the L^2 rate of convergence in the limit from the Hartree to the Vlasov–Poisson equation* (2022) arXiv:2203.11485 (with Laurent Lafleche and Chiara Saffirio)

Teaching

UTAUS, Instructor, (2019–current)
UMCP, Instructor, Teaching Assistant or Grader (2012–2019)
UCSD, Teaching Assistant, Grader or Department Tutor (2008–2012)

Talks

1. "Effective equations in quantum mechanics and quantum chemistry" at the Twelfth IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory Mar. 30-Apr. 1, Invited Talk

2. Analysis Talk, Beijing Institute of Technology, Dec. 28, 2021, Invited Talk

3. Analysis Talk, Institute of Applied Physics and Computational Mathematics (IAPCM), Dec. 27, 2021, Invited Talk

4. "Dispersive Wave Equations with Applications in Optics and Fluids" at the 4nd Annual Meeting of the SIAM Texas–Louisiana Section, Nov. 5–7, 2021, Invited Talk

5. UT Condensed Matter Physics, MacDonald's Group Webinar Meeting, Oct. 9, 2021, Invited Talk.

6. Young Researchers Symposium, ICMP Geneva 2021, July 29, 2021, Contributed Talk.

7. PDE/Analysis Seminar, Beijing International Center for Mathematical Research (PKU), Apr. 20, 2021, Invited Talk

8. Mathematical and Theoretical Physics Seminar, Jacobs University, Nov. 26, 2020, Invited Talk

9. "Nonlinear Waves and Applications" at the 3nd Annual Meeting of the SIAM Texas–Louisiana Section, Oct. 16–18, 2020, Invited Talk

10. Webinar on Applied Partial Differential Equations, August, Invited Talk

11. Texas Differential Equations Conference, March 7, 2020, Invited Talk

12. PDE Seminar, University of Iowa, Nov 14, 2018, Invited Talk.

13. Analysis Seminar, University of Pennsylvania, Nov. 8, 2018, Invited Talk.

14. Young Researchers Symposium, ICMP Montreal 2018, Contributed Talk.

15. AMS Special Session on Nonlinear Evolution Equations of Quantum Physics and Their Topological Solutions, 2018 Joint Mathematics Meeting, Invited Talk.

16. Texas Analysis and Mathematical Physics Symposium 2017, Contributed Talk.

Conferences

1. 2021 4nd Annual Meeting of the SIAM Texas–Louisiana Section, South Padre Island (Nov. 5–7, 2021)

2. 2021 International Congress of Mathematical Physics, Geneva (July 27–Aug 8, 2020)

3. 2019 Rivière-Fabes Symposium, University of Minnesota (Apr 12–14, 2019)

4. 2019 Joint Mathematics Meeting, Baltimore (Jan 16–19, 2019)

5. MSRI Introductory Workshop: Hamiltonian systems, from topology to applications through analysis, Berkeley (Aug 20–24, 2018)

6. 2018 International Congress of Mathematical Physics, Montreal (July 19–27, 2018)

7. 2018 Rivière-Fabes Symposium, University of Minnesota (Apr 27–29, 2018)

8. 2018 Joint Mathematics Meeting, San Diego (Jan 10–13, 2018)

9. 2017 Texas Analysis and Mathematical Physics Symposium, Austin (Nov 3–5, 2017)

10. MSRI Summer Graduate School, Nonlinear dispersive PDE, quantum many particle systems and the world between, Cortona Italy (Jul 17–28, 2017)

11. 2017 Rivière-Fabes Symposium, University of Minnesota (Apr 28–30, 2017)

12. MSRI Introductory Workshop: Harmonic Analysis, Berkeley (Jan 23–27, 2017)

13. MSRI Introductory Workshop: Randomness and long time dynamics in nonlinear evolution differential equations, Berkeley (Aug 24–28, 2015)

Services

1. TA for RTG Summer Program in Analysis & PDE at UT Austin (2021)

2. Organizer of the Student PDE and Harmonic Analysis seminar (2015, 2018).

3. 2015 UMD MAPS-REU Mentor.

4. Math Directed Reading Program Mentor. List of mentees and projects:

   - Edward Shao, "Neural Network" (Fall 2021)
   - Sean Shu-Huai Lin, "Erdős Distance Problem on the Plane" (Spr 2019)
   - Nathan Hayes, "Finite subgroups of the 3D rotation group" (Fall 2018)
   - Tyler Hoffman, "Immersions, Emeddings and the Klein Bottle" (Spr 2018)
   - Luke Corcos, "One dimensional quantum mechanics: the free particle" (Fall 2015)
   - Guoqing Wang, "Fourier transforms of tempered distributions" (Sum 2014)
   - Lee Antlefinger-Norton, "A closer look at Riemann integration" (Fall 2013)

5. 2018 UMD Girls Talk Math Camp Mentor.

6. UT Austin RTG REU Mentor (Wint/Spr 2021–2022).

- Jonathan Li, "Determining the Vibrational Spectra of Nanotube Fullerenes Using Representation Theory"
- Shankar Padmanabhan, "A Graph-Theoretical Analysis of Fullerenes", won CNS Award for Excellence in Math

Awards and Honors

UMCP, Ann G. Wylie Dissertation Fellowship (2018–2019)
UMCP, Dean's Fellowship (2012–2014)
Phi Beta Kappa, Sigma Chapter of UCSD (since 2012)
UCSD, Physical Sciences Dean's Award (2010–2011)
UCSD, Provost Honors (2008–2012)