Georgia Tech College of Sciences
School of Physics

Martin Mourigal
Elwood P. Blanchard Associate Professor
Chair, Awards Committee
School of Physics, Georgia Institute of Technology

On Behalf of the School of Physics Awards Committee and the Chair of the School of Physics

Date: Sunday, February 12, 2023
Re: Nomination of Prof. Gongjie Li for a CTL/BP Junior Faculty Teaching Excellence Award

Dear Colleagues,

We are writing to nominate Gongjie Li, an assistant professor in the school of physics for the BP Junior Faculty Teaching Excellence Award. Gongjie has already taught 4 courses in the Physics program: Classical Mechanics (PHYS 3201), Mathematical Methods (PHYS 3151), and Relativity (PHYS 4147) are undergraduate courses, and Radiative Processes (PHYS 8813) which is a graduate course. In these courses, Gongjie prioritizes a research-based and inquiry-based curriculum. Since joining Georgia Tech, and despite the difficulties of the pandemic, Gongjie has demonstrated exceptional progress and success as an instructor, bringing her research background in the dynamics of exoplanets and exceptional enthusiasm for classical and relativistic mechanics to impact a large portion of our undergraduate and graduate students. Gongjie loves studying science and sharing discoveries about the cosmos. She explains that teaching achieves a two-fold objective: providing a strong background in physics to students and sharing her passion for the frontiers of the research world. As you will see in the package she has assembled, students particularly praise the inclusive learning atmosphere in Gongjie's classes: this is extremely important given that Advanced Mechanics and Relativity are often designed as weed-out classes given the level of mathematical sophistication that they require. Instead, Gongjie, while maintaining the full rigor of these courses, is able to make the courses fun, engaging and empowering for our students. We are proud of Gonjie's accomplishments and impact in the classroom. We support, in the strongest possible terms, awarding her the CTL's 2023 Junior Faculty Teaching Excellence Award.

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Warm Regards,

Martin Mourigal
For the School of Physics Awards Committee and the Chair of the School of Physics

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Reflective Statement on Teaching

Gongjie Li
Assistant Professor, Georgia Institute of Technology

It is always my passion to study sciences and to share with others the breakthroughs in our understanding of the universe. Thus, I really enjoy teaching, which allows me to have the great opportunity to prepare the students with strong background in physics and to share with them the excitement in research frontiers. In addition, I really enjoy helping the students and supporting them to better prepare for their future careers. Thus, my primary goal in teaching is to provide a positive and inclusive learning environment for the students, and to help them collect important tools to excel in the future. As an assistant professor at Georgia Tech, I have been fortunate to teach 4 different courses so far. Three of them are undergraduate level courses (Classical Mechanics PHYS 3201, Mathematical Methods PHYS 3151 and Relativity PHYS 4147), and one of them is a graduate level course (Radiative Processes, PHYS 8813). I have implemented inquiry and active learning-based teaching, and I have emphasized on the connection between research and coursework.

Research-focused teaching: Numerous studies have shown the benefits to students involving research experiences in classes, including enhanced self-confidence in scientific thinking and the development of scientific process skills (Szteinberg and Weaver 2013; Brownell et al. 2015), increased inclusivity in science for unrepresented populations (Bangera and Brownell 2014), and improved persistence in science and medicine (Hanauer et al. 2012). Students are encouraged to take research credit classes as they conduct research projects under the guidance of faculty members at Georgia Tech. However, the physics program expanded significantly in the past few years (e.g., with 166 total enrollments in the academic year of 2016-2017 to 271 in the year of 2021-22), and it becomes more competitive to join research groups for undergraduate students. It is thus now critical to design "pre-research" projects to allow students to gain experiences in classes using scientific research practices.

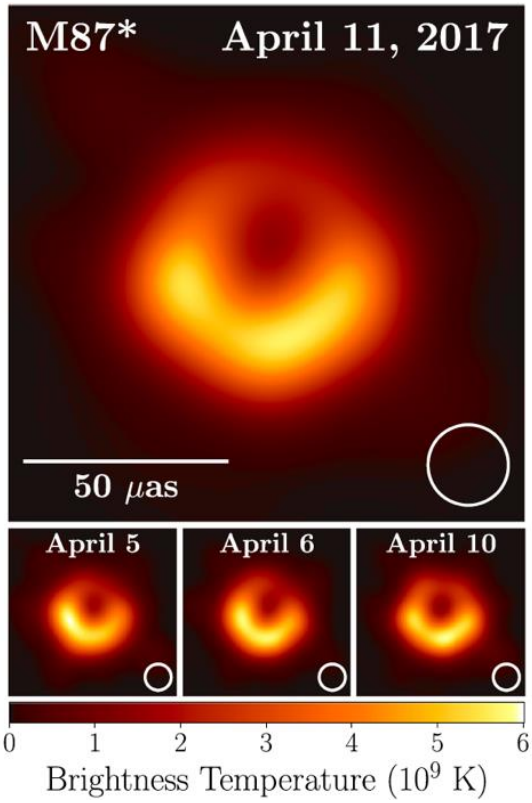

Figure 1. The first image of a black hole taken by the Event Horizon Telescope Collaboration, included as a homework problem to analyze the spacetime curvature.

To this end, I have implemented research elements in teaching. I developed homework problem set based on frontier research articles. I designed problems to help guide students going through the research article, and to promote critical thinking by asking them to find caveats in the scientific results. For instance, when I taught undergrad level course *Relativity (PHYS 4147)*, I shared with the students the article "*First M87 Event Horizon Telescope Results. I. The Shadow of the*

Supermassive Black Hole" by The Event Horizon Telescope Collaboration, published in 2019. This is a seminal paper on the first image taken on a black hole, and it is closely related to our class material on properties of the black hole Schwarzschild metric. I asked the students to analyze the image of the black hole (Figure 1), finding the photon capture radius of the black hole, the mass, and the spin of the blackhole, in order to apply what they learned in class to real world problems. In addition, I asked the students to discuss future improvements to the imaging to promote critical thinking and creativity. The students mostly did very well on the problem set.

In addition to reading research articles, I have also included recent scientific breakthroughs as illustrative examples in class. For instance, in Classical Mechanics class (PHYS 3201), orbital motion of objects and Keplerian motion is one of the important topics. To better understand the concept, we applied what we learned in class to calculate the mass of the first detected exoplanet around the main sequence star (which earned Michel Mayor and Didier Queloz the 2019 Nobel Prize) based on their radial velocity observational measurements. Moreover, to illustrate the effect of radiation pressure and discuss the relationship between pressure and momentum, we discussed and watched the movie of *Breakthrough Starshot*, which aims to demonstrate proof of concept for ultra-fast light-driven nanocrafts and lay the foundations for a first launch to the Solar System closest neighbor *Alpha Centauri*. The students were very interested in these topics. I was assured that they learned a lot, not simply judging from their assignments and in-class quizzes, but from my many interactions with after class and in office hours with them following the discussions on the scientific breakthroughs. Many of the students from my classes ended up joining my research group and excelled in their research projects.

<u>*Class engagement:*</u> Due to COVID, some of my classes were held with online components, and I found one of the challenges of online teaching is to engage the students. I created a welcoming and inclusive environment for the students and asked many questions to the students to ensure class participation. In addition, I frequently asked for feedback from the students on the pace and the difficulty level of the classes, and make adjustment accordingly. I was glad to find the students enjoyed the classes and commented "*Dr. Li created a warm and friendly environment, which made engaging with the class very natural. She consistently sought out student feedback, making it clear that she deeply respected students' thoughts, time, and effort. She was able to clearly explain difficult concepts, and was very helpful in answering questions. Overall, she was incredibly enthusiastic about the class, and demonstrated genuine kindness and understanding towards students*" in the CIOS survey.

Moreover, I created in-class quizzes for the students as bonus points, and the time for the quizzes are not announced in advance. The quizzes covered the new topics introduced in class, and thus it required the students to listen and follow the class materials. Meanwhile, the results of the quizzes also reflect how well I deliver the class materials. This allows me to make adjustment accordingly. Towards the midterm of the course, I found that around 60-70% of the students can have full scores on the quizzes, and learned the materials well. I was delighted to find out that the students found the classes were engaging and the quizzes were helpful from the CIOS survey. One of the students included the quizzes as the best aspect of the class, commenting that "*The bonus quizzes were great. They were random, so they encourage class participation. They encourage engagement and understanding during class so you can actually earn the points, and then they decrease stress as they supplement the grade as a reward for learning more attentively*."

Peer-learning activities: I find students learn more effectively through peer-learning, so I have developed group exercises and final projects for my students to work together. For instance, in my recent undergrad level class "Relativity" (Phys 4147), I developed a final project for the students to work in groups. They may choose a topic from a list that I prepared, and they may also choose an alternative topic of their own interest. The students worked in groups to explore the relevant literature and prepared a 10min presentation to present in the last day of class and submitted a 3 page summary. **Teamwork and collaboration** were crucial to success in the final project, and the students listed the roles and contribution of each group members when they submit their final projects. In addition, through the final project, the students improved their **oral and written communication skills**, which are critical for success both inside and outside of academia.

I was very impressed by the dedication of the students on the final project and the quality of their presentations. Many of the groups started early within a few weeks after the start of the semester and came up with their own topics. For instance, one of the groups decided to work on the ray tracing images of black holes. It was a very difficult problem, where the students need to solve the geodesic around the black holes and obtain distorted images due to the spacetime curvature by the black hole. The group started the project since the beginning of the semester and met with me frequently to explore different ways to solve the geodesic equations. They were very independent and motivated, and I witnessed how they collaborated and learned from each other and improved during the project. In the end, they developed their own code and obtained high quality images as shown in Figure 2. I received highly positive comments about the final project. Many of the students included the final project as the course's best aspect in the CIOS survey. For instance, one of the students note that "*I *LOVED* the final project, it was a really great idea on the part of Prof. Li and I wish it were more common in similar high-level physics courses, it really helped us gain exposure and work with more advanced material as it interested us, and demonstrate and test our mettle in independent study, which is really important for physicists.*"

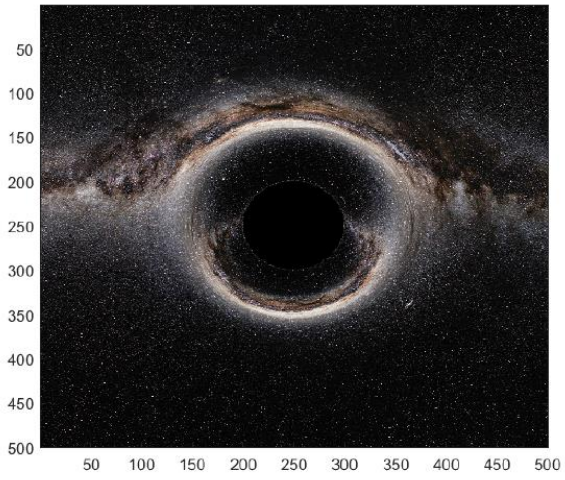

Figure 2. Ray tracing image of a black hole in front of the Milky Way made by the students (Stanisław Kowalski, Cameron Eure, and Oscar Haase) as a part of their final project in PHYS 4147.

Curriculum development: In the spring of 2021, I designed a new graduate level astrophysics course "Radiative Processes". "Radiative Processes" is key to many research areas in astrophysics, and serves as a core astrophysics class at the graduate level. The aim of the course is to prepare Ph.D. candidates for their frontier research. Motivated by one of the NSF's ten Big Ideas "Windows on the Universe", I developed class materials on multimessage astronomy, which included gravitational wave emissions, neutrino detections as well as electromagnetic signatures from a variety of astrophysical sources. I assigned a list of papers that include both papers with milestone accomplishments and recent development in radiative processes, and students may choose one of them to make a 20-min presentation for their final project. This way, the students could study a topic related or complementary to their research areas in more detail, and meanwhile practice their presentation skills. I received highly positive feedback on the course.

Independent studies: I have been fortunate to advise talented undergraduate students to explore the formation and habitability of exoplanetary systems, as well as the dynamical evolution of black holes for their independent studies courses. It was a great pleasure to work together with the students, to answer their questions, to help them design their numerical experiments and to help them prepare for upcoming conferences and presentations. The students did very well on their independent studies. Two of my students published their first-author papers, and we are working on two more undergraduate student led papers currently. My students have won the *PURA salary award, PURA travel award*, as well as the *Love Family Foundation Award.* Many of them got accepted by top universities to work on astrophysics as graduate students, including two at Penn State, one at Caltech and one at Stanford.

Illustrative Examples of Teaching Excellence

Over years, I have committed myself towards helping Georgia Tech students excel through my teaching, and I have actively adjusted the methods I adopt to teach based on student evaluations and feedback. My teaching quality has thus improved, as reflected through quantitative scores reported on the CIOS. Below is a summary table outlining the courses covered since joining Georgia Tech.

Semester Course #	Sp-2018 3201	Sp-2019 3201	Fa-2020 3151	Sp-2021 8813	Fa-2021 4147	Sp-2022 3201	Fa-2022 4147
# students	41	47	22	9	33	56	36
# responses	25	21	10	7	19	27	21
% of responses	61%	45%	45%	78%	58%	48%	58%
CIOS Question	Grade below is interpolated median with a maximum score of 5.0						
Enthusiasm	4.8	4.8	4.5	4.8	4.9	4.8	4.9
Respect	4.7	4.8	4.7	5	4.9	4.9	5
Course effectiveness	4.1	3.9	4.3	4.8	4.9	4.2	4.9
Instructor effectiveness	4.2	4.0	4.5	4.8	4.9	4.8	4.9

Representative CIOS comments:

CIOS Comments Related to Instructor Effectiveness, Respect and Concern Toward Students

(PHYS 4147) Dr. Li created a warm and friendly environment, which made engaging with the class very natural. She consistently sought out student feedback, making it clear that she deeply respected students' thoughts, time, and effort. She was able to clearly explain difficult concepts,

and was very helpful in answering questions. Overall, she was incredibly enthusiastic about the class, and demonstrated genuine kindness and understanding towards students
(PHYS 4147) Dr. Li is one of the best professors in physics, if not the best. Her class was organized and clear, with deadlines known well in advance and a consistent schedule, her lectures are methodical and clear and her notes are a great resource. She answers questions with enthusiasm and responds promptly to questions outside of class. She always has a positive attitude and an excitement about teaching. Of all the talking among students about professors, I've only heard positive words about Dr. Li.
(PHYS 4147) She was very well prepared to teach this course. She had extensive knowledge of the material and was ready to answer and question a student had for her. By far one of the best professors I have had at Georgia Tech, especially within the School of Physics.
(PHYS 4147) Professor Li's dynamic of interaction with the class was excellent- there was not a fear of being judged if answering a question wrong, or if not answering. She was always very kind and understanding in any interactions. Her ability to explain complex problems and concepts was also great!
(PHYS 4147) Dr. Li was very enthusiastic and well prepared for lecture! She also dealt with all of my questions and comments (sorry) and thus made me feel a part of the course and not a distant observer as the online classes had made me feel. This class and instructor helped remind me what courses should feel like as even when I did not do well on the first exam; I knew I had the resources to do better and Dr. Li facilitated a healthy environment to strive for improvement.
(PHYS 4147) The lectures were very well planned out and engaging. I was never upset to show up to class, and I always enjoyed it. The homework was an excellent extension of lecture, and while difficult, created a great litmus test while preparing for exams.
(PHYS 8813) It was quite remarkable how broad our coverage was of RP concepts despite it (correctly) only being three credits and all online. This is almost entirely thanks to Gongjie's abilities as an instructor.
(PHYS 8813) It was evident that the instructor highly valued the student's learning progress. Due to her friendly manner, I felt comfortable reaching out to her in case I had any questions. I think one of her greatest strengths was that she asked many questions during lectures to keep us engaged. I also liked that she included many examples to illustrate certain topics.
(PHYS 3151) She is just such a fantastic professor! Loved every lecture and learned probably the most I've ever learned in a physics class!
(PHYS 3151) Professor Li takes great care to answer student questions respectfully and fully, and makes sure that students understand the answers. She provides a lot of helpful resources promptly, like uploaded lecture slides and further reading. The material is difficult, so she makes sure to adjust the pacing by popular vote to match.
(PHYS 3201) Professor Li was very enthusiastic and very considerate of students.
(PHYS 3201) Very enthusiastic about the topic. Also very approachable whenever I had a question and needed to contact her outside office hours.
(PHYS 3201) I really appreciate the professor's enthusiasm and her availability. She was even willing to meet with students to clarify concepts after the final! Grading was also super quick.
(PHYS 3201) Remained enthusiastic throughout the semester and always answered students' questions to satisfaction.

CIOS Comments Related to Course Design Effectiveness (e.g., real world problems, research-focused teaching and peer-learning activities)

(PHYS 4147) I *LOVED* the final project, it was a really great idea on the part of Prof. Li and I wish it were more common in similar high-level physics courses, it really helped us gain exposure and work with more advanced material as it interested us, and demonstrate and test our mettle in independent study, which is really important for physicists. The bonus problems were also challenging and rewarding, a really great setup overall!

(PHYS 4147) Final project was creative and fun to do.

(PHYS 4147) The project was also very fun! I enjoyed getting to choose our own topic and do a little exploration :D

(PHYS 4147) The project was really interesting to complete and listen to other groups' presentations.

(PHYS 4147) The bonus quizzes were great. They were random, so they encourage class participation. They encourage engagement and understanding during class so you can actually earn the points, and then they decrease stress as they supplement the grade as a reward for learning more attentively.

(PHYS 8813) I enjoyed the final project a lot, as well as some of the homework problems that tested our conceptual understanding. I felt so cool, like I was doing actual research in observational stellar or planetary systems!

(PHYS 8813) I thought making the "final" a project in which we took a paper relevant to our own research interests that applied RP concepts and presenting it to the class was great.

(PHYS 8813) The instructor did a good job tying the concepts we were learning in class to real world examples

(PHYS 3151) I really appreciated the examples of application we got, and overall I thought lectures were good.

(PHYS 3201) Professor Li is very knowledgeable and applied material to real world and awesome examples such as starshot

(PHYS 3201) Professor Li would talk about the real life applications of everything, i.e. hurricanes, satellites, shock absorbers and so on.

(PHYS 3201) The best aspects were the lectures and how real world problems involving classical mechanics were being solved on the board. From Physics 1 I only received a basic idealized idea of how mechanics works, but this course taught me how to tackle real world problems where conditions are not always ideal.

(PHYS 3201) The greatest strength was the ability to stimulate interest in the students by solving problems that apply in the real world, like the mechanics of a rocket or a gyroscope. These made the lectures feel important for the acquisition of knowledge that any physicist should have.

Letters of Supports from Students

Gongjie Li
Assistant Professor, Georgia Institute of Technology

Joshua Brandt (Georgia Tech)

I had the pleasure of taking Classical Mechanics I and Relativity with Dr. Li, and have worked in her lab for two semesters. What I think is really special about Dr. Li is how she is able to connect with a class. She actively asks for and implements feedback, takes initiative in making sure any issues are resolved, and most importantly has a contagious enthusiasm. Her lectures are always upbeat, and given with a positive and excited attitude that compels you to be even more interested yourself. She is one of the few professors that can make everyone laugh and have a genuine dialogue with the class. She also includes real-world examples to connections we talk about in class, like showing us examples of gravitationally-lensed galaxies while we were learning about gravitational light deflection in Relativity. She is very willing to help with inconsistent grading of TAs (one time a TA marked me off like 10% for writing ~= instead of = and she personally went in and checked my assignment and regraded it), makes her courses very organized with a clear schedule, well-written and organized notes, and pacing. She also helps relieve stress of her students by recognizing that in the real world, you don't need to memorize equations and such and so has open book, at-home exams. She's also extremely knowledgeable about what she teaches. Sometimes, you get the impression that a professor just kind of read the textbook a couple days before and can't really discuss deep, detailed questions because its not really their area of expertise. Dr. Li clearly always knew what she was talking about and could answer complicated questions instantly.

A good anecdote which I think exemplifies this are her reaction to the issues in L5 during our Relativity Class. After the renovation, the whiteboard is extremely reflective and so the projector's light-bulb reflects right back at full intensity and makes it like you're staring into the Sun during class. One time I tried putting on sunglasses during lecture to see if it would help. During our next research group-meeting, she asked me if everything was ok with my eyes and I told her about the problem and the next class she began using a TV in the room instead and moved where she lectured from so that the room was basically being used sideways to avoid the board, and we stayed like that the whole semester. To me, it is rare for a professor to notice one person in a room of 50 people wearing sunglasses for a few minutes and personally taking initiative to ask about and fix the problem.

Another one was during Classical Mechanics. That was among my first college physics classes, and when I took that class, I was still intimidated to ask questions during lectures out of fear of embarrassing myself. Whenever someone asked a question during class, Dr. Li always started with something to the effect of "Good Question!" which probably had a bigger impact than she realized. It definitely made me feel more open to asking questions because it felt like she was validating our concerns and never, at all, implying it was silly to ask. Even when she asked the class for an answer as lecture participation and someone responded incorrectly, she seemed to have a way of on-the-fly validating their answer by still giving a comment about its relevance. She made an environment that really FELT welcoming, instead of just saying it was, and encouraged me to ask more questions during lectures in other classes.

I really enjoy working in her research lab because she takes time to meet with all of the undergraduates 1:1 to discuss the progress of our projects every week, which is a lot more personal than giving a quick update during a group meeting. She takes a very approachable

attitude and asks about how our classes are going, things we're up to outside of school, and shares about herself. Its very refreshing from some of the more "distant" professors which just only talk about work and don't interact as much on a personal level. After her colloquium visitors, she invites us all to go to dinner with the guest and discuss their research with her students, which I was once able to attend and had a really unique experience getting to talk to the author of one of the main papers we were using as a starting point for our research project in the lab from Cornell.

While we give updates, she gives us suggestions that will apply to the rest of our careers as scientists, not just specific feedback. Like what types of plots are best for what kind of data, communication strategies, giving us insight into the world of professional academia, and strategies for becoming better researchers like thinking ahead to our next-steps independently during a research project.

She has definitely made me a more knowledgeable, confident, and skillful physicist in terms of teaching and mentorship in her lab. Her personality made me feel more welcome and accepted in what can often be an intimidating field to begin in as an undergraduate.

Jake Miller (Georgia Tech)

Not only was I a student of Dr. Li, I was a grading assistant for her as well. So I got to experience her teaching from both perspectives. First I was her grader for Classical Mechanics. Having taken the class myself with a different professor I was able to see how Dr. Li had a very focused approach where she tactfully picked the problems that would pose a reasonable challenge for students. I could see how the homework was shorter than mine when I took the class, yet as a grader I could see that the students were learning the material just as effectively. Her organized lecture notes were of great assistance to that. Dr. Li was very easy to work with and communicate with as both a grader and a student. I saw this myself when I was sick in her class and got an extension or when she would ask the class how to we would best like to go about our final presentations, and I saw it when communicating with the students as a teaching assistant. A professor that actively seeks the student's advice and opinion can create effective and enjoyable learning environments. This is was Dr. Li does. Aside from that she is a very fun professor. She is a relaxed grader which relieves stress but tests are still fair and homework challenging enough for students to learn. She also offers extra credit assignments and opportunities that encourage mastering concepts and class participation.

Daytona Parks (Georgia Tech)
I would happily recommend Professor Li for the Georgia Tech Teaching Award! I took Relativity with Professor Li in the Fall of 2021 and then did volunteer research with her in the Spring of 2022. During class, Prof. Li would always begin with a helpful review of the chapter we were working on to catch any students that may have missed class up to speed. She was always available to answer any questions on the homework and classwork and ensured that the students genuinely understood the material before moving on. I really appreciate the fact that she kept the students engaged by doing in class practice problems on Canvas. During the semester I did research with her, Professor Li encouraged myself and one undergraduate researcher to expand are python programming skills to assist her in her research with Billy Quarles on debris disks. She was always very flexible with our schedules as students and was able to schedule multiple video conference calls to help the other undergraduate researcher and I learn more about the research we were doing. She always wanted us to make sure we felt included in the research. Professor Li is by far one of the best professors at Georgia Tech.

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February 8, 2023

Professor Martin Mourigal
Chair, School of Physics Awards Committee

Re: CTL/BP Junior Faculty Teaching Excellence Award nomination for Dr. Gongjie Li

Dear Professor Mourigal,

I am writing in my capacity as the Director of Teaching Effectiveness (DOTE), to report on the teaching of Assistant Professor Gongjie Li for the purpose of the CTL/BP Junior Faculty Teaching Excellence Award. In preparing this report I have reviewed Dr. Li's CIOS student evaluations, teaching statement and a teaching assessment that I carried out.

Dr. Li has taught at the undergraduate junior and senior levels and given a graduate level Special Topics class. Specifically, she was instructor for the courses PHYS 3201, Classical Mechanics I, PHYS 3151, Mathematical Physics, PHYS 8813, Radiative Processes, PHYS 4147, Relativity.

Classical mechanics, PHYS 3201, is core material for students in the B.S. Physics and Applied Physics degrees and is a popular science elective for non-physics majors. PHYS 3151 and 4147 are elective classes, the latter an integral part of the B.S Physics with Astrophysics Concentration. An advanced graduate course on radiative processes was designed by Dr. Li for the education of PhD research students in astrophysics.

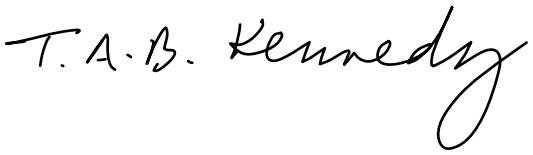
Most of Dr. Li's teaching has coincided with the significant challenges of online instruction during the pandemic. Dr. Li's CIOS scores are consistently strong in categories such as enthusiasm, respect for and communication with students and availability to students as well as overall effectiveness. These are testament to the way she has successfully navigated the difficulties of instruction in recent times.

I recently attended one of Dr. Li's lectures in PHYS 4147, Relativity, dealing with the motion of particles in a curved (gravitating) spacetime. The theme was to replace the dynamical equation of Newton for a freely moving particle with Einstein's relativistic equation. Dr. Li spent time at the beginning of class giving clear instructions about a forthcoming quiz, and the material for review and preparation. The class was presented to a group of students in-person, with some students attending online via bluejeans, using projection from a computer monitor to communicate the writing of lecture notes. Dr. Li presents the material in an authoritative, clear and calm manner and has the excellent pedagogical technique of asking leading questions to help students foresee the

direction of her arguments. This was particularly effective as the material is quite technical, involving the use of variational methods. Dr. Li's presentation first grounded the students in the familiar, by showing them how the variational method leads to the familiar Newton's equations. The end goal, the nonlinear differential equations with Christoffel symbols came at the end after breaking the derivation up into several digestible pieces. Along the way a particularly elegant physical picture emerged in the case of weak gravity, where the special and relativistic effects of time dilation in a weak gravitational field appear in a natural way. Indeed, the students reacted audibly and visibly to the recognition of a familiar result, which Dr. Li had thoughtfully provoked. The class was enjoyable and informative. Dr. Li is an instructor who makes strong connections to the audience and engages positively with students.

As Dr. Li notes in her teaching statement, she has employed a variety of active and peer-based techniques to help students learn in remote conditions and has carefully designed graduate level project work to strongly couple with frontier astrophysics research. Dr. Li's thoughtful approach has been appreciated by her students and in my opinion she is an excellent candidate for the CTL/BP Junior Faculty Excellence in Teaching Award.

Sincerely,



Brian Kennedy

Professor,
Director of Teaching Effectiveness,
School of Physics