ASAP Board Nominee Statements

Radio Astronomy

Marcel Agüeros: I am an associate professor at Columbia University, where my research group focuses on using multiwavelength observations of low-mass stars to explore the evolution of their fundamental properties. Although no longer an active radio astronomer, I have a deep attachment to Arecibo, which I first visited as a 12-year-old. My experience there as an REU student in 1995 shaped my career, and over the past decade I have participated in several committees that played a role in determining the Observatory's future. (You can read more about this personal history here: https://bit.ly/3yVjtXw.)

My goal as a member of the ASAP board is to facilitate the production of a consensus-based roadmap that enhances Arecibo's ability to be at the cutting edge in its four missions: the production of new knowledge in astronomy, planetary science, and atmospheric science, and strong leadership on the island and beyond in education and public outreach. My impression is that recently the Observatory's multidisciplinarity was more albatross than strength, with e.g., federal agencies cutting one source of funding by claiming that Arecibo should draw more support from one of the other sciences, resulting in the slow strangling of the Observatory that we have all decried. To move beyond this, we must build unassailable science and education cases that leverage Arecibo's history and our collective knowledge and creativity, but we also need to develop processes that insures that our efforts are coherent. I am committed to that work.

Héctor Arce: I am a professor of astronomy at Yale University, whose research interests include the interstellar medium and star formation. I was born and raised in Puerto Rico and the Arecibo Observatory was a major inspiration for me in my pursue of a career in (radio) astronomy. I have served in the Arecibo Users and Scientific Advisory Committee and in the Astro 2010 and Astro 2020 Decadal Surveys. I briefly served in the ASAP board when it was first created and since December of 2020 I have been leading the advocacy sub-committee, created after the collapse of the telescope. In the last 5 months I have taken part of congressional visits and briefings to advocate for support of Arecibo Observatory in Congress. I will continue to advocate for the Arecibo Observatory and Puerto Rican radio scientists as an ASAP board member (or a regular ASAP member).

Mayra Lebron: Dr. Mayra E. Lebrón Santos, astronomer at the University of Puerto Rico. My main area of research is star-formation. ASAP is an organization that responds to the interests of the local and international scientific community linked to the Arecibo Observatory. Within ASAP I expect that we can find ways so that the Arecibo Observatory can once again serve the community of scientists in atmospheric sciences and astronomy (active and passive). I firmly believe that places like the Arecibo Observatory are necessary for the training of new generations of scientists. As a member of the Puerto Rican community, I also plan to support and promote initiatives in ASAP that allow the strengthening of the local scientific community dedicated to radio sciences and also that a close and solid relationship with the Arecibo Observatory can be consolidated.

Natalia Lewandowska: Natalia Lewandowska is a Visiting Assistant Professor in the Physics and Astronomy Department at Swarthmore College. She specializes in multi-wavelength data of fast rotating and highly magnetized neutron stars known as pulsars. A core of her research focuses on an irregular form of radio emission from pulsars known as giant pulses. These individual pulses are very short and irregular in occurrence. To unravel their emission mechanisms Natalia is carrying out multi-wavelength observations at different wavelengths, ranging from radio to X-rays and gamma-rays.

The former Arecibo telescope with its large collecting area and high speed recording possibilities provided a crucial instrument for Natalia's research. A visit to the Arecibo Observatory in 2013 also showed Natalia how much the telescope means to people on the island in terms of possibilities for the future.

As a part of the ASAP board Natalia will actively support the scientists and students (in terms of active scientific collaborations) on the island and work alongside other members to obtain funding for a new Arecibo telescope in the future. Her work will also consist of outreach work to make people all over the world aware of the fact that the former Arecibo telescope was an instrument like no other in terms of technical diversity and resulting scientific results.

Robert Minchin: I have been an Arecibo user since 2004 and joined the staff at the Observatory as a post-doc in 2005, becoming a staff scientist in 2008 and then group lead for radio astronomy in 2015. I was PI of the Arecibo Galaxy Environment Survey (AGES), the second tier of the E-ALFA 'wedding cake' of surveys, and initiated the Widefield Arecibo Virgo Extragalactic Survey (WAVES), as well as leading and being involved in many other projects with Arecibo. I moved to SOFIA in 2018 after over a decade in Puerto Rico, leaving behind many friends and happy memories, but remained an active user and supporter of the Observatory. I was invited to give the key-note talk at the Arecibo Observatory Open House at the January 2020 AAS meeting and to present my research with WAVES at the Arecibo Observatory Legacy and Future session at the June 2021 AAS meeting.

I have agreed to stand for election to the ASAP board at the request of other members of the community because I want to keep supporting Arecibo's science and plans to build back better in a way that will continue to support the 305-m's legacy of being both a world-class scientific instrument and an inspiration for the people of Puerto Rico. I believe that ASAP is the best way for the community to show its continued support for the future of the Arecibo Observatory.

Russ Taylor: Russ Taylor received a B.Sc in Astronomy, from the University of Western Ontario in 1976, and a Ph.D. in Physics (Radio Astronomy) from the University of British Columbia in 1982. He is currently the Director of the South African Inter-University Institute for Data Intensive Astronomy and a South African Joint Research Chair in Radio Astronomy at the University of Cape Town and University of the Western Cape. Before coming to South Africa in 2014, Professor Taylor was Professor of Astrophysics at the University of Calgary and Director of the three-university Institute for Space Imaging Science. Past positions include: Head of the Department of Physics and Astronomy University

of Calgary, Visiting Scientist, U.S. National Radio Astronomy Observatory; Distinguished Visiting Scientist, Australian Commonwealth Industrial Research Organization; Research Associate, University of Manchester, Jodrell Bank Observatory; Research Associate, University of Groningen, Kapteyn Astronomical Laboratory; NSERC Postdoctoral Fellow, University of Toronto.

He has served on numerous national and international committees and boards. Among these are several that impact planning and development of astronomy world-wide, including President of the Radio Astronomy Division of the International Astronomical Union. He has played a leading role on Square Kilometre Array Project since its inception, serving as founding Executive Secretary of the International Square Kilometre, Array Steering Committee, founding chair of the International SKA Science Advisory Committee, vice-chair of the International SKA Science and Engineering Committee, and as a member of the International Board of the Preparatory Phase Program for the SKA and of the International Board of the SKA Organization. As the founding SKA International Project Scientist in 1998 he co-authored the first science case for the SKA project.

Snezana Stanimirovic: Snezana received a B.S. degree in Mathematics and Astronomy in 1996 from the University of Belgrade, Serbia, and a PhD in Astronomy & Astrophysics in 2000 from the Center for Astronomy, University of Western Sydney, Australia, where she spent a lot of time at the CSIRO's Astronomy and Space Science headquarters. She held postdoctoral positions at the Arecibo Observatory in Puerto Rico, and the Radio Astronomy Lab at the University of California, Berkeley. In 2006 she joined the Astronomy faculty at the University of Wisconsin, where she was promoted to Full Professor in 2015. Snezana is an observational astrophysicist using international radio and infrared telescopes with the aim of understanding the initial conditions for star formation in the Milky Way and nearby galaxies. Her research and educational efforts have been recognized with a National Science Foundation CAREER award and a Cottrell Scholar award by the Research Corporation for Science Advancement. In 2016 she was elected as a Fellow of the American Association for the Advancement of Science, and in 2019 she became a Guggenheim Fellow. Her other awards include election to Sigma Xi, the Vilas Associate award by the University of Wisconsin, and several research grants from the National Science Foundation and NASA.

Snezana's passion for the Arecibo Observatory and education in Puerto Rico resulted in her being one of the early members of ASAP. She is excited to explore future research and educational avenues for Arecibo through the ASAP Board membership.

Planetary Science

Randy Hughes-King: I am inspired by every step of human knowledge that expands our understanding of the universe. The responsibility of serving on the ASAP Board is not one I take lightly. I was inspired last year to support Arecibo's next steps in any way possible through this difficult time. What comes next will

help contribute to Puerto Rico's student experience, contribute to the regional economic recovery, and enlighten our understanding of the universe for the NSF and humanity as a whole.

I have served on numerous multicultural, educational, and civic organizations boards in all four primary roles. My longest is 12 years with the Maine Forensics Association, teaching speech and debate categories to high school students across 16 high schools across the state. Over the past year, as Moderator of Congressional Debate, I helped transition the entire organization's 15 categories of competition to digital format with a minimal budget. Our program seamlessly transitioned through the pain loss of in-person tournaments. The talent of speaking to an audience shifted for everyone as a digital audience was brand new for students and judges alike.

Arecibo, too, is entering a period of long-term transition. Their contribution to science has emerged repeatedly at Open Planetary presentations and during my meetings with members of Congress earlier this year advocating for a larger planetary science budget for NASA alongside the Planetary Society. My skills over the past year make me eager to offer my contribution to the Admin/Infrastructure Committee but also for any role where I may be of service.

Catherine Neish: I am running to serve on the ASAP Board in the area of Planetary Science because I want to help restore the most powerful planetary radar on Earth. I was inspired to pursue a career in planetary radar after an REU fellowship at Arecibo in the summer of 2003. Since then, I have used radar images to study the surfaces of numerous planets in our solar system. I was devastated when the telescope collapsed in December 2020, but heartened to see the community of Arecibo scientists rally together to brainstorm new ideas for the telescope's future. I met many engaged and innovative members of this community during the NSF's Arecibo Options Workshop in June. I want to continue the work we started in the workshop by serving on the ASAP Board. During the workshop, it became clear to me that more coordinated lobbying efforts are needed to emphasize the importance of Arecibo to American and international stakeholders. During my term on the ASAP Board, I would work to identify professional societies that could lobby on Arecibo's behalf, and provide them with material and talking points to distribute to their members. For example, as a member of the Division for Planetary Sciences of the AAS, I would request support for Arecibo during our annual lobby day in Washington, DC. I would also arrange for specific letter drives, where members of the Arecibo community could target relevant stakeholders with specific requests for funding. I am open to feedback from the community, and during my term, I would work to ensure everyone's voice is heard, and everyone feels included. Thank you for your consideration.

Michael Nolan: I was an Arecibo staff member from 1995 to 2015, serving during that interval as head of the Planetary Radar program and as Observatory Director. During that time, I was also involved in a number of technical improvements to the telescope. My primary scientific interest is in Planetary

Radar observations of near-Earth objects, and am currently working on spacecraft mission to asteroids originally studied at Arecibo.

My primary goal as a member of the ASAP board would be to regain the full scientific capability of the Observatory, and in particular its Planetary Radar capability, as quickly as possible. I personally believe that construction based on the legacy Arecibo design would be the fastest and most cost-effective way to achieve that goal, but will support any mechanism that achieves it.

If that is to be achieved, a consensus as to the path forward needs to be formed. I think the ASAP can help steward those discussions. The recent “workshop” organized by the NSF did a reasonable job of laying out the various issues and ideas but did not approach a "condensation" of the many ideas into a workable path forward. ASAP is not a decision-making body, but does have a lot of expertise that can be applied to try to reach community consensus and assist a potential lead institution to move the project forward.

Anne Virkki: I'm a planetary scientist currently based in the University of Helsinki, Finland, and a former head of the planetary radar science group at the Arecibo Observatory (until March 2021). I have five years of experience of working at Arecibo; I started as a postdoc in 2016 and as a staff scientist in 2018. My contributions and leadership were widely valued among the scientific and administrative staff. I'm standing for election for ASAP in order to continue to support the Observatory. I hope ASAP can provide the Observatory staff with scientific support and advocate for the Observatory in conferences and other community events through these challenging years. Rebuilding will require a number of white papers and proposals, which might take a toll on the scientific productivity of the staff. ASAP can provide a helping hand where being part of the staff is not required for proprietary reasons, and encourage the communities (astronomy, planetary, and atmospheric) to express their political support for the Observatory.

Atmospheric Science

Jan Bergman: Dr. Jan E. S. Bergman received the Ph.D. degree in Space Physics from Uppsala University, Uppsala,Sweden, in 2000, in the field of relativistic kinetic plasma theory. After his dissertation, he was aconsultant in a private company working in the field of telecommunications, where he developeddigital pre-distortion techniques for 3G base-station multicarrier power amplifiers (MCPA), and laterhe co-founded a university spin-off telecom company, where he worked as a Research Manager.Upon returning to academia in 2004, he spent one year as a postdoc, at the Space Research Centre ofthe Polish Academy of Sciences in Warsaw, Poland, before being employed by his home institution,in November 2004, as a Project Manager. Currently, he is a Senior Scientist and, since 2006, apermanent staff member at the Swedish Institute of Space Physics (IRF) in Uppsala. Since 2010, hehas served as the Instrument Manager (IM) for the Radio & Plasma Waves Investigation (RPWI)suite of instruments for the JUICE mission to Jupiter, which is scheduled for launch in

September 2022. Dr. Bergman has visited the Interamerican University of Puerto Rico and the AreciboObservatory two times, in 2011 and 2016.

I believe I could contribute to the ASAP board in the field of Planetary Science. As the IM for RPWI, I'm heavily involved in all aspects of the JUICE mission to Jupiter, which include many contacts with European and Japanese Universities, as well as with the major space industries in Europe.

If I become elected, I would first of all work hard to make the HF facility at Arecibo operational again. It's the only facility in the world that can be used to calibrate our HF radio antennas onboard JUICE. Secondly, in the JUICE Science Working Team (SWT), we have already started discussing opportunity flybys of asteroids during the cruise phase, for which the unique planetary radar capability of the new Arecibo telescope would be extremely beneficial. It is also very likely that the NASA Europa Clipper mission will be simultaneous to JUICE. Discussions about JUICE and Europa Clipper science opportunities and collaboration have already been started in the SWT, which ground support from Arecibo could strengthen.

Furthermore, continuous broadband monitoring of the Jovian decametric emissions, as well as new planetary radar observations of Venus and the Moon, the two main upcoming targets for NASA and ESA planetary exploration, are subjects that I would strongly encourage as an ASAP board member.

Eframir Franco-Diaz: Greetings. I got my bachelor degree in Applied Physics and Electronics from the University or Puerto Rico at Humacao Campus (undergrad research: Astronomy) and my Master's degree in Physics from The Catholic University of America. Currently, I am working on establishing a Rayleigh-Mie-Raman Wind Lidar at the Leibniz-Institute for Atmospheric Physics located in Kuehlungsborn, Germany as part of my PhD. I am a product of the Arecibo Observatory's (AO) educational outreach mission. I started working at the AO since I was a high school student in 2009, making this facility center and foundation of my whole scientific career. I owe all the skills and knowledge that I have today to the 9 years I spent working at Arecibo as a Lidar and Data Analyst Technician, REU coordinator, leading the development of the scientific content of the new exhibitions at the AO Visitor Center and even supported Atmospheric and Planetary Radar Observations. I agreed to stand for election to the Board because I think that I understand how AO works and what are its needs. Also, being a Puerto Rican gives me the advantage of personally knowing colleagues from the local universities on the island, improving cooperation and collaborations locally. The direct consequence creating national and international networks, will significantly enhance scientific research experiences for students on the island. As a member of the ASAP board, I believe an optical and Lidar specialist should be one of the elected representatives for Atmospheric Sciences. This way, everyone is fully represented. Being elected, I would like to innovate the Lidar Systems at AO upgrading them to increase their capabilities and efficiency. Also, I would support the efforts to make the NGT a dream come true. In addition, having worked at NASA Goddard as a Space Weather Forecaster during my Master's degree, I wish to enhance the Space Weather capabilities at

AO. I have a lot of energy, ideas and new collaborations to bring to the table. I just need your vote to do so!

Eliana Nossa: My relationship with Arecibo started approximately 20 years ago, working for Dan Campbell and Germán Cortés, designing the first ALPACA prototype. Back there, I also participated in exciting projects, like looking for water on the Moon, that motivated me to pursue a Ph.D. in Aeronomy using Arecibo under the direction of David Hysell. The change of areas was taken not by personal preference but by budget cuts imposed by the Arecibo Senior Review. That was my first experience with the AO financial struggles. However, my interest in Arecibo's unique capabilities has always been stronger than the economic annoyances. The ISR Arecibo data from my work can't be collected with any other instrument and is a treasure that I would use as long as possible.

After finishing the Ph.D., I joined Arecibo as a scientist at the "HF Facility." The best part of my job was to promote the unique research possibilities at the Observatory. During my first campaign, there were just a few users. By the end, people were sitting on the floor because the control room wasn't big enough for all the participants.

Leaving Arecibo was a challenging decision motivated by personal reasons and opportunities to grow. I dreamed of going back after my fellowship was over; I kept helping when needed and concentrate on essentially Arecibo-based research. However, that dream was put on pause in December 2020.

I am shocked to know that many aeronomers are not supportive of the new Arecibo idea, as well as by the recent layoff of one of the ISR scientists at Arecibo. Therefore, as a board member, I will focus my energy on communicating the good aspects of Arecibo (legacy and future opportunities) and prioritizing radio science at the site.

Juha Vierinen has worked in atmospheric and planetary radar using the EISCAT, Sondresstrom, Haystack, Arecibo, and Jicamarca radar observatories. During his PhD work he developed a 25-MHz-bandwidth USRP radio recording system, which he later brought to Arecibo and, with the help of the AO staff, implemented it on the 430-MHz ISR, taking the first-ever spectra including plasma, gyro, and ion lines together in a single recording. His design was then implemented as part of the permanent Arecibo system, and was the standard system that was used for 430-MHz ISR measurement until the cable failures in 2020. Juha has participated in heating experiments at Arecibo and EISCAT, and has done a wide variety of other observations, including making radar maps of the moon at 50 MHz using Jicamarca. Juha has been to Arecibo many times, and recently served a term on the Arecibo Observatory Users Committee (AOUC).