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Memorie della

My friend Francesco Palla

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Abstract. This is the write-up of an emotional farewell speech dedicated to the memory of Francesco Palla. It briefly summarizes Francesco's scientific legacy and also addresses his human side. Most of all, it describes some of my own memories with Francesco, including various meetings and events where we met (with photos). There are a few personal characteristics about Francesco that were not mentioned at his legacy conference which I find worth mentioning. Finally, we all agree that Francesco should be put among the stars, and some of us have suggested naming an asteroid after him.

1. Introduction

At the end of this legacy conference I cannot possibly summarize the 40 talks we have heard and the 100 posters we have seen. Instead, I wish to pay my own special tribute to our friend and colleague in whose honor we have come together here this week. It is still hard to believe, but Francesco Palla suddenly passed away at his prime on Jan 26, 2016 at age 62. On behalf of the 200 or so participants, I would like to take the opportunity to thank the LOC and the SOC, and the Palla family, for making this conference happen, here in Florence in a historic venue that Francesco liked very much.

2. Francesco's scientific legacy

Amongst Francesco's publications, "The Book" (as he called it) is probably the most influential. This text book on "The formation of stars" (Wiley 2004), written jointly with Steve Stahler, is what almost all of us refer to and use for star formation teaching. It excels in clarity and scope and took some 10 years to finish. A second edition is planned, now without Francesco. Another major legacy of Francesco will be the proceedings of this conference. It will contain a discussion of his pioneering papers on primordial star formation and his seminal papers on pre-Main Sequence (pre-MS) evolution. There are other important papers which include a wide range of topics: water masers as signposts of high mass star formation, the prediction of stellar pulsations in young intermediate-mass stars and brown dwarfs, the star formation rate in young clusters such as the Orion Nebula Cluster, the use of X-rays to identify pre-MS stars. These papers testify to his vast astrophysical curiosity and interests.

Being an eminent scientist, he was also asked and selected to take on scientific management duties. Thus he was director of the Arcetri Observatory for 5 years (2006-2011). He discussed his achievements and limitations as director in Bo Reipurth's Star Formation Newsletter No. 256 in April 2014. In addition, he was editor of Astronomy & Astrophysics Reviews. As such, he initiated the review on

Fig. 1. A group photo of some of the participants at the Les Houches Summer School 1983. Francesco is the handsome young man in the middle. The author is also in the picture on the far left. (Courtesy John Bally).

"Accretion disks in luminous young stellar objects" by Beltran & de Wit (2016), for example. Most significantly, he was selected to become President of the European Astronomical Society, but tragically left us the night before his appointment.

Many of us will remember Francesco as a great inspiration for students. Some of us knew his passion to take care of Villa il Gioiello, Galileo Galilei's last home in Florence (where we had the conference dinner) and several of us were fortunate enough to get a special guided tour of the villa with him in the past. Few of us were aware of his love and enthusiasm for public lectures. None of us knew about the delightful booklet "The Little Prince's Universe" (that he secretly wrote in 2015), until his wife Sylvie showed it to us as a surprise at the beginning of the conference and distributed copies to the participants. You must read this update of Antoine de Saint-Exupéry's classic!

3. Francesco's human side

This brings us to Francesco's human side. "Una bella persona" as Daniele Galli said. Without a doubt. He was also a gentleman, always held a smile, was never pushy, and had "no big ego" (as Mark McCaughrean correctly noted). Those of us who knew him well all agree he was generous, humble, and caring for people; easy going, full of *esprit* and also very eloquent (he liked playing puns). Perhaps he immortalized himself in the character of the wise astronomer talking to the Little Prince in his booklet published posthumously (with wonderful illustrations and drawings by his wife Sylvie). His family, friends, and colleagues miss him more than words can say.

4. Personal memories

I first met Francesco at the famous Les Houches Summer School "The birth and infancy of stars" in 1983. Many of us remember that Summer School in the French Alps as highly influential for our astronomical careers and friendships. Francesco and I stayed in contact and he later (1987) visited me at the Royal Observatory in Edinburgh where I was a postdoc.

We worked on a paper about non-equilibrium H_2 formation in the early universe, but we also had fun playing indoor soccer with our fellow Scottish postdocs (and beat them convincingly). We went to a premier league game in Hampton Park in Glasgow! Two years later, in 1989, Francesco invited me to his

Fig. 2. Panel discussion at the 2007 Heidelberg conference on high-mass star formation (courtesy Henrik Beuther) with Francesco at the microphone on the left and his Arcetri colleague Malcolm Walmsley on the right. In between, from left to right Harold Yorke, Chris McKee, and Ian Bonnell. Sadly, Malcolm Walmsley also passed away just about 1 month before Francesco's Legacy conference and we here pay tribute to Malcolm, too.

wedding in Paris with Sylvie Duvernoy, but I missed it. This was the biggest miss in our long friendship which I regret to this day. The next event I remember was the Workshop on Young Star Clusters and Early Stellar Evolution in 1991 in Vulcano (Aeolian island near Sicily), where I also met Ed Salpeter and Steve Stahler. The proceedings of this conference are published in Memorie della SAIt Vol. 62 by Palla, Persi & Zinnecker (eds.) and include a photo I took where they all take a swim in a mud bath! This was great fun and an unforgettable memory. For the next few years, we were busy with our own lives and somewhat out of touch. In 1997, we met again. Francesco organized a workshop on "H_2 in the early universe" at Villa Agape in Florence which was run by nuns. I have very vivid memories, not so much of the early universe but of the nuns (serving us breakfast and lunch). Then, in 1999, we had the honor to lecture together at the Saas-Fee winter course on "Star formation in galaxies" organized by André Maeder (published by Springer). A lot of work. Cross-country skiing and curling on ice were our sportive rewards. Soon after, in 2000, I organized the IAU Symposium 200 "The formation of binary stars" at my home institute, the Astrophysical Institute (AIP) in Potsdam. Francesco gave a talk on testing pre-MS models in young (coeval) binary star components, but we (almost coeval) also played binary system in doing a bicycle tour around the local lakes in the Potsdam/Berlin area. In the same year, the Arcetri Observatory organized a conference in Volterra on "High-mass stars: An origin in clusters" – a topic we were both enormously interested in. After the conference, Francesco took me to the nearby Etruscan museum in Volterra and showed me the "Ombra della sera" statue of which I still have a poster to this day. In the summer of 2001, we were both invited to Joe Silk's wedding in France. The wedding took place in the country house of Hubert Reeves, the Canadian-French Grand Seigneur in nuclear astrophysics and renowned science popularizer (the French speaking Carl Sagan) whom we both admired. Pity that Joe Silk was not with us this week in Florence. Joe inspired Francesco to study the important role of H_2 in primordial star formation.

Speaking of great men in astronomy, surely Ed Salpeter was one of the greatest. In 1955, he published his famous paper on the stellar initial mass function (original title: "The luminosity function and stellar evolution"), writ-

Fig. 3. Group photograph (courtesy Mark McCaughrean) at the 2008 school on Young Stellar Clusters (an EC-RTN project) on the terrace of the Arcetri Observatory, with Francesco in the back on the left among students and colleagues.

ten in 1954 during a sabbatical in Australia. To honor this giant, and on the occasion of the 50th anniversary of this landmark paper, I suggested to Francesco to have a legacy meeting for Ed Salpeter, which he and Edvige Corbelli carried further and together we organized the 2004 Spineto conference in Tuscany in honor of Ed Salpeter. The Proceedings ("The IMF 50 years later") with many photos capture the event, both scientifically and on a personal level. A similar conference in honor of Marteen Schmidt and the 50th anniversary of his seminal paper on the star formation rate (1959) was also organized by Edvige and Francesco in Spineto in 2009 and drew a huge attendance.

This brings us to the present time. The last meeting I shared with Francesco was the meeting in honor of George Herbig on Herbig Ae/Be stars at ESO in Santiago de Chile in April 2014. I remember I convinced Francesco to visit the beautiful port city of Valparaiso with me. We had a great time there, one on one, and I told him I was planning to retire and get married in Chile with Andrea whom he had met before on a previous visit to Florence. He was very positive and excited about these plans, and we had Francesco over with a couple of other astronomer friends in our apartment in Santiago the same week. I mention all this because the last time I saw Francesco was at our post-wedding celebration in Germany, in my Franconian home town of Dinkelsbuehl on 26 Sept 2015. He and Sylvie kindly accepted our invitation and there is a nice farewell photo of all four of us. The final email I exchanged with Francesco was his Happy New Year message on Dec 31, 2015 and my best wishes in return. Little did we know then what would happen a few weeks later.

5. What was not said at the conference

A number of things were not said about Francesco during the conference but are characteristic of his interests and his personality. First, I would like to highlight his unfailing support for his elder brother who has Parkinson's. I briefly met and talked with him at the Istituto degli Innocenti, our conference venue. Secondly, and equally kind, was his care for the homeless people in the Santa Maria Novella train station in Florence. Every other

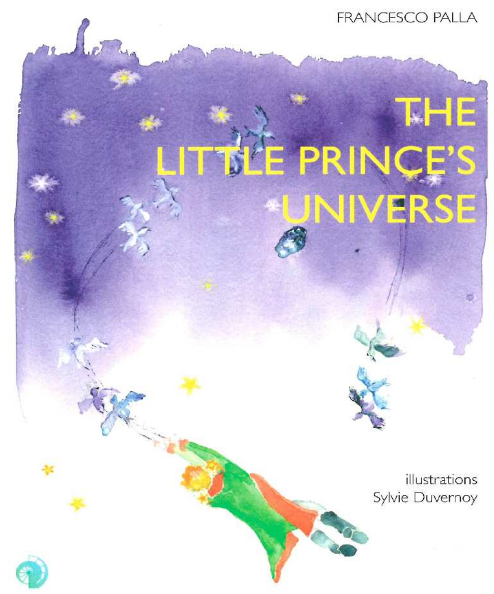

Fig. 4. Cover of the book "The Little Prince's Universe", Francesco's last *divertissement*.

Saturday morning he would go there at 6am or so to bring them food and other humanitarian help. This goes to show he was one of a kind and a man rooted in "faith" (as his younger daughter Arianne revealed to me). Of course, he must have had weaknesses, too.

On the professional level, as Francesco himself discussed in the Star Formation Newsletter (No. 256), it was Antonella Natta who served as his "laurea" advisor in Rome – Francesco never got a formal PhD, as the latter did not exist at the time in Italy. Furthermore, before Francesco embarked on a career in astronomy, he was torn between astronomy and Egyptology. He loved the hieroglyphs, and I saw a small copy of the actual Rosetta Stone in his house in Florence. I also saw a part of his diary where, in perfect handwriting, he sketched the idea of "The Little Prince's Universe". Students, of course, will remember his splendid viewgraphs before the time of powerpoint. After this conference, it became known that the University of Oxford will create a Francesco Palla Memorial Prize in Astrophysics for undergraduates, and the website (`https://hubbub.org/p/francescopallamemorialprize`) has a wonderful 2 min video with Francesco on the rooftop at Arcetri Observatory where you can see him alive and his usual self in speaking about the beauty of astronomy.

6. Francesco in the sky

Finally: what is in a name? What does it mean "Palla"? Well, it means "ball" like football, something round, perfectly shaped like a star. I have already described Francesco as a football (calcio) fan, and I can add here that he was greatly admiring the style of play of Juventus (Torino) and also was fervently supporting the Italian national team (squadra azzurra); particularly during world cup games, when he and I would bet and predict the scores and ultimate outcome.

However, as a lasting astronomical recognition, I suggested (and others had the same suggestion) considering something more memorable in the sky. Since we cannot name a constellation after him the idea emerged to name an asteroid after him (like the one to which the Little Prince returned, smiling at us). This naming process, which can be somewhat lengthy and involves the IAU to approve, is ongoing, and the result pursued by his friends and colleagues will be announced soon.

Acknowledgements. I would like to thank Riccardo Cesaroni, Edvige Corbelli, and Daniele Galli at Arcetri and Francesco's daughters Arianne and Barbara for the planning of this conference in the heart of Florence. I also warmly thank my SOC co-chair Steve Stahler for his thoughts and significant input regarding the scientific program. I am sure this conference and its participants will help to keep Francesco's legacies alive and vibrant for many years to come.