

The renowned cosmologist *Halton “Chip” Arp*,
one of the three NPA 2011 Sagnac Award winners,
received his award in a ceremony held in his honor
on March 31, 2012 in Munich (Germany) where he lives.

The contributions to the ceremony are collected here in the order of their presentation.

Welcome Address by Marie-Hélène, Halton Arp’s wife:

PRESENTATION OF THE 2011 SAGNAC AWARD TO HALTON C. ARP

Munich, 31 March 2012

Welcome Ladies and Gentlemen,

We have gathered here at the occasion of the presentation of the 2011
Sagnac Award to Halton “Chip” Arp,

This reward is particularly close to Chip’s heart because, while the
other prizes recognize results or new ideas or new observations, the
Sagnac Award recognizes and honors Freedom and Courage. Indeed,
for Chip, a strong sense of freedom was required. Freedom to undertake
new types of observations, critically examine current dogma, challenge
common thinking, not giving in to the scientific social pressure.

This is, I imagine, one aspect of the freedom that the new
Bundespraesident , Mr. *Joachim Gauck*, would like to see spreading widely
throughout the society.

I would like to end by quoting the 6th paragraph of the preamble of the
Swiss Constitution : Free is only the one who uses his freedom.

The weather is nice. It is a good day, Let us celebrate Chip. Exactly ten
days ago it was his 85th birthday.

M.-H. Arp

Introduction by *Randall Meyers*, close friend to *Chip Arp*:

HOME IS IN THE VIRGO CLUSTER

Halton C. Arp - A Life in Dialogue



Since I've been asked to introduce this session with a brief, informal talk about my thirteen years of friendship and collaboration with Chip Arp, well, I found it hard to know where to begin such a rich and multifarious story without swelling it into epic proportions. So I decided to start it from where we stand and work my way back.

Before going further, I have to point out that the present state of world-wide research in cosmology is far from adequate for gaining a reliable understanding of the observed universe. The present dogmatic, specialist approach, prevalent in this pseudo-science, since the late 50s, but completely fossilized today into a kind of brittle remnant of knowledge nipped at the bud - gives us not only the advantage of a "delimited field of work" (greatly prospering its status-quo attitude of *'the show must go on'*), but also an excellent excuse not to bother with what is happening in the wider, phenomenological-interconnectedness of the cosmos.

Cosmology has become just so much stale bread – no longer nourishing except to the birds – hackneyed concepts ready for a sky burial. It is this pressing moment bidding scientist to move on. The wings of time let flow fresh winds from every corner; and it is up to our minds to make shape and understanding of the knowledge it brings with it.

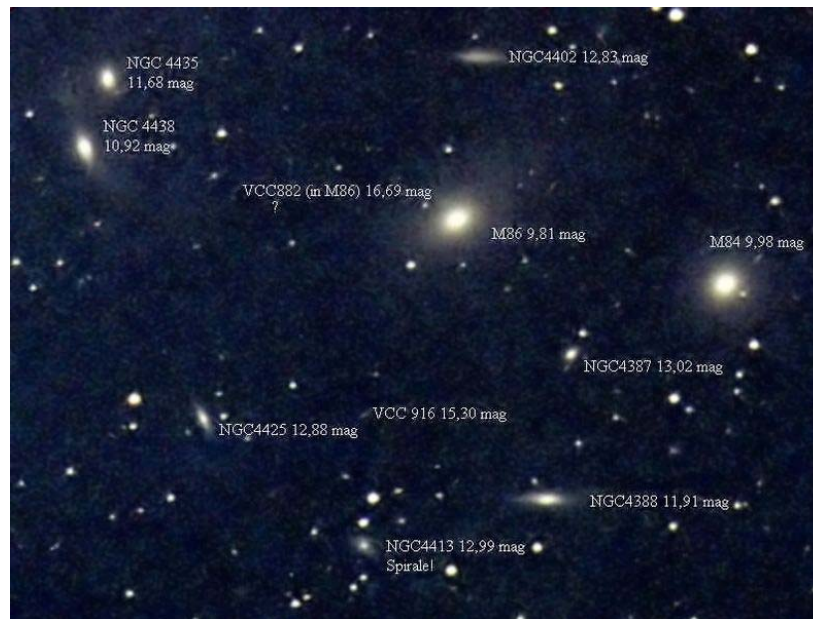
HOME IS IN THE VIRGO CLUSTER

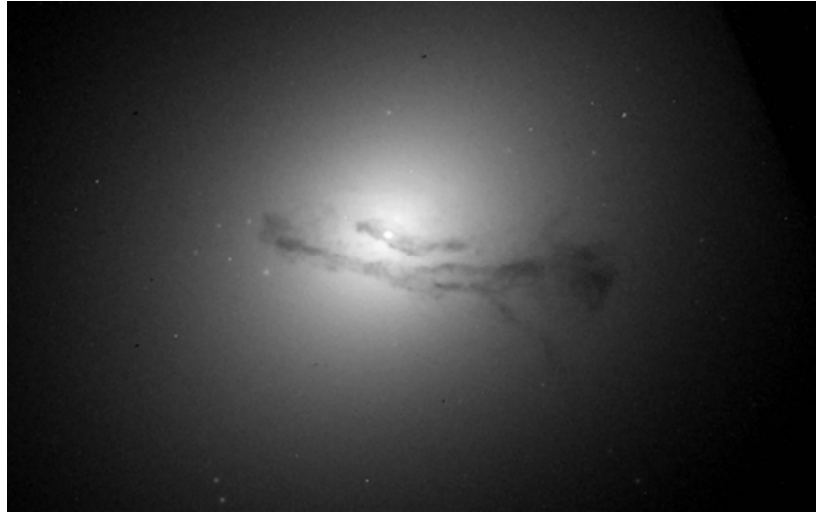
I wish that this title had been my invention, but alas I have to admit that it's Chip's!

I read somewhere recently that an amateur copies and an artist steals – well I guess I pertain to the latter because I stole this from Chip just about a month ago while visiting him right here in this building. This is not as illicit as it may sound. The fact is that I've been looking for the title of our book, a biography-by-interviews that I've been writing together with Chip for some time now. As writing often goes the beginning, in this case the title is always the hardest bit to nail down. So obviously, when he exclaimed

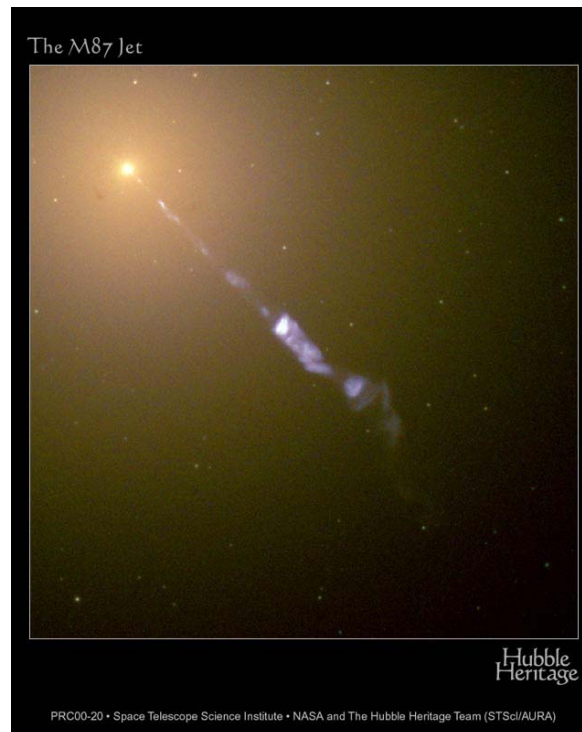
suddenly “Home is in the Virgo Cluster” I seized on it and finally nailed down the title for our book.

But why, one may ask, is home in the Virgo Cluster? Of course only Chip can answer the subjective aspect of this question – but I would like briefly to refresh our view of the spectacular neighborhood where he resides, that is, in case any of us wish to visit him there.





The famous [Virgo Cluster](#) of galaxies (sometimes also called "Coma-Virgo cluster" which is perhaps more accurate, as it extends into the constellation of Coma), lies at a distance of about 60 million light-years. M87, to start our tour, is positioned well in the [heart of the Virgo cluster](#), together with a lot of important galaxies including [M84](#) and [M86](#). The giant elliptical galaxy M87 (NGC 4486), also called Virgo A, is one of the most remarkable objects in the sky. M87 or Arp 152, is perhaps the dominant galaxy of this spectacular cluster, which more than once establishes the importance of Chip Arp's observations in general, if not the obvious value of the ideas and theories resulting due to these extraordinary observations.



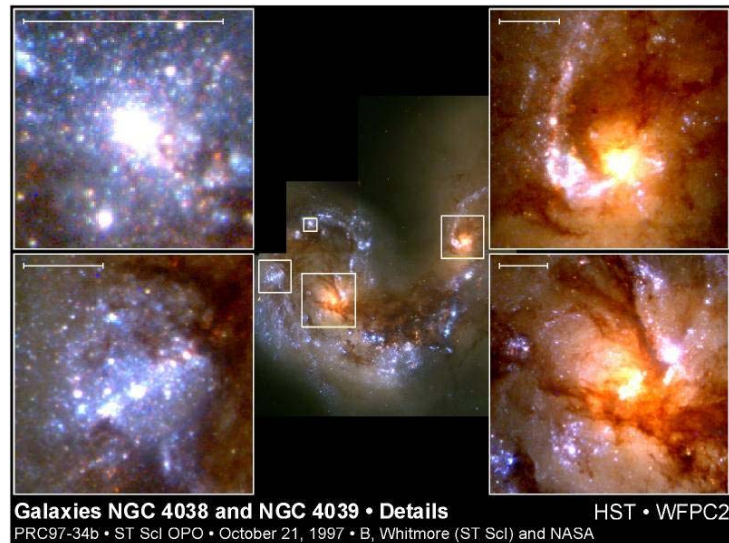


M87's diameter corresponds to a linear extension of 120,000 light years, more than the diameter of our Milky Way's disk. However, as M87 is of type E1 or E0, it fills a much larger volume, and thus contains much more stars (and mass) than our galaxy, certainly several trillion (10^{12}) solar masses according to some studies. This galaxy is also of extreme luminosity, with an absolute magnitude of about 22. The one most remarkable aspect of this galaxy, is its extended 25-arcsecond jet. Over the years Chip Arp has scrutinized the plasma knots embedded in this jet, concluding that they are likely 'proto Quasars' and moving at relativistic velocities – all determined by strenuous and rigorous research. The controversy that issued was equally strenuous but without the scientific rigor!

Continuing our tour, we see one of the most active starburst galaxies known, M82



Then of course, two of my favorites - the galaxies NGC 4438 & NGC 4435, Arp 120, also known as "The Eyes" which are about 50 million light-years away.



Virgo, as we can see, is rich in galactic diversity, explosive and evolving. In short it's a great place to hang out in – a lot of action and creative vitality; all things essential for the inquisitive well being of Chip Arp, whom it appears thrives on challenge and good science: which is to say fair science, and going beyond our dogmatic mental barriers.

I would like to change gear here and quote Galileo on scientific knowing.

Simplicio; *La causa di quest'effetto è notissima, e ciascuno sa che è la gravità.*

Salviati; *Voi errate, signor Simplicio; voi dovevi dire che ciascuno sa ch'ella si chiama gravità. Ma io non vi domando del nome, ma dell'essenze della cosa. Della quale essenza voi non sapete punto più di quello che voi sappiate dell'essenze del movimento le stelle in giro...*

(Galileo Galilei, 1632 - Dialogo Sopra I Due Massimi Sistemi del Mondo)¹

Society progresses using a set of standard concepts which as far as common understanding is concerned are taken for granted by pretence of knowing. We think that we know because others, 'the experts' told us that they know. The above citation from Galileo Galilei is a perfect example of this assertion. Everyone thinks, or at least feels, that they know what the force of gravity is, but in fact no one does. We (science) observe an effect and then simply give it a name, no one the wiser to what it actually is in its essence, being just as lost in the dark as before naming it. We have learnt something about how it works but nothing about what it is.

There are many other standard concepts with which mankind has been groping in the dark, some since the beginning of self-reflective thought, most of which we have swallowed as given physical or metaphysical fact without any further consideration to their essential truth. I suspect that our understanding of the Red-Shifts of Quasars in particular, and the theory of a Big-Bang Universe in general, are one and the same belief-system fossilized in the labyrinth of blind assumption based on undisputed scientific inflexibility.

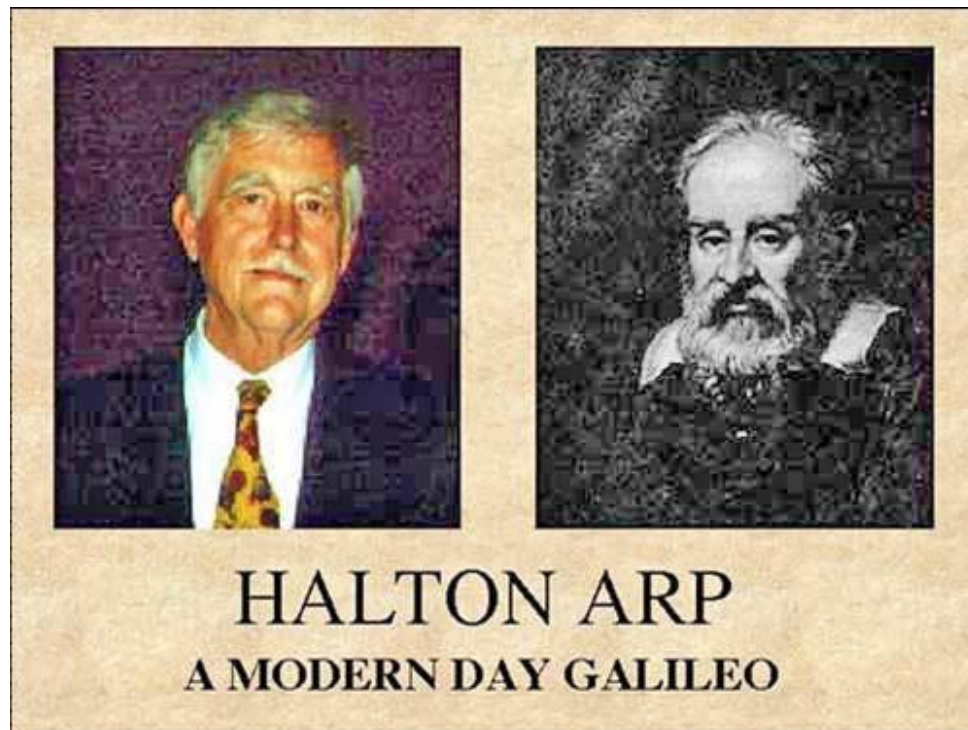
Returning to Chip and his personal plight, reminds me that during the last decade or so we have often shared it together. Our friendship and collaboration began after I read his book "Seeing Red". I was shocked by his statements and experiences, as I naively considered the science of astronomy to be one of the last pure disciplines left to society. But what I read in Chips book demonstrated something completely different. Like Chip, I enjoy a good fight. But I at once noticed that his fight resembled more Don Quijote with lance fighting a mountain of powerful men dressed in glittering cloths of dogma. Something had to be done, so I contacted Chip from Italy, and came to Munich to meet him, expecting a mad-man dressed in medieval armor carrying a blunted sword. To

¹ SIMP. The cause of this effect is well known; everybody is aware that it is gravity.

SALV. You are wrong, Simplicio; what you ought to say is that everyone knows that it is called "gravity." What I am asking you for is not the name of the thing, but its essence, of which essence you know not a bit more than you know about the essence of whatever moves the stars around...

my surprise I met Chip; Dr. Chip Arp, one of the fairest, well mannered, intelligent and humoristic people I'd ever had the fortune to meet. He opened up his world to me, and with much research and study I understood the crux of his arguments and observations, intuited there sociological and philosophical implications. Being a composer and film maker – my instinct shouted out – There is a Film Here, Make it!!! I thought then and still think, that MEDIA is the only way to circumvent such a powerful blockage, and get his work out to a wider, and like Galileo, more open minded general public. Three or four years later it was done and distributed and still speaks.

To return to the above quote by Galileo because it is well known that Chip Arp is popularly named the Galileo of the 20th and 21st century. Many of the correlations are obvious. Both were respected scientists, popular leaders in their field. Both made observations which contradicted the accepted theories. Both were ordered to stop their observations or risk the consequences. Neither stopped either observing or exposing and publishing their findings though forced out mainstream science circles and emarginated. Nevertheless, there are several scientists in our time and before who have succumbed to the same maltreatment. So why is Chip Arp so special and deserving on this title?



The essential quality that defines a scientists work is not himself, his fame and prestige; or position and power over others; but his willingness to do good science by

asking questions that further prevailing ideas no matter what the cost to oneself or popular theories. Never Give Up, until an observation or theory has been thoroughly disproven, nothing less than checkmate, or the unequivocal final lunge of the fencer's sword will do.

Once while talking to one of Chip's daughters in America, she said to me with a bit of remorse, "I don't know why my father just didn't change his line of research instead of giving up everything for conflict." I reflected a second then gave her this answer: "well because, if he is right he will have spent his life making one of the greatest discoveries is cosmology, he will have toppled a dinosaur and increased our understanding of physics in the universe a 100 fold and not wasted his life following a theory riddled with movable parameters and dogma. If, on the other hand, he is wrong then he has in any case served science in the highest sense, by forcing astronomers to make sense out of his observations, which no matter what, point at red shift anomalies. Also he would increase our understanding of Quasars and their relation to the galaxy populations a 100 fold. It is a win-win situation" I said. No one should give up on what one's instinct and reflective insight reveals as a correct path. Even a correct path leading to a different destination than one has planned – gives a worthy journey and in any case is what science is about! She just smiled.

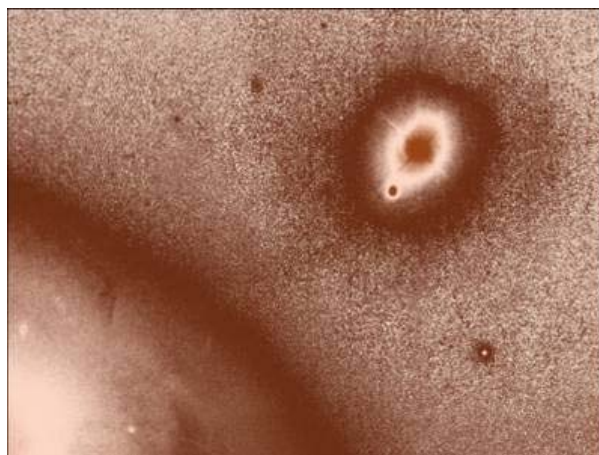
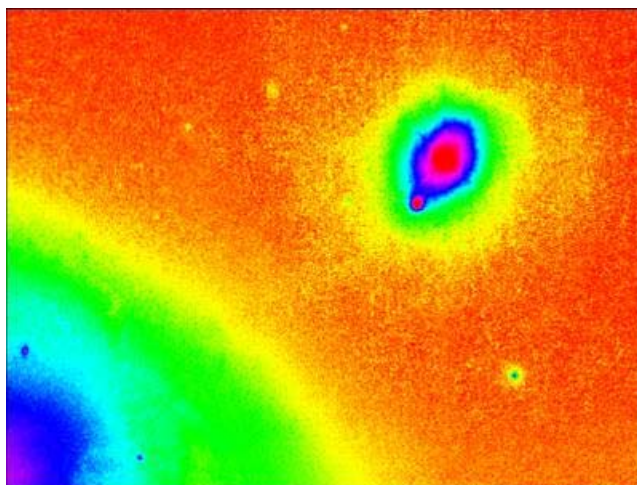
Going through these galaxy images once again and reflecting on the many quasar relationships and alignments that have been discovered through the last decade, simple astounds me – and I for one, cannot believe that the truth of this situation has still not taken astronomy by storm.

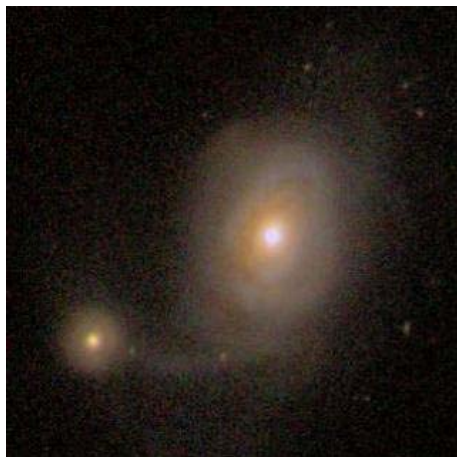
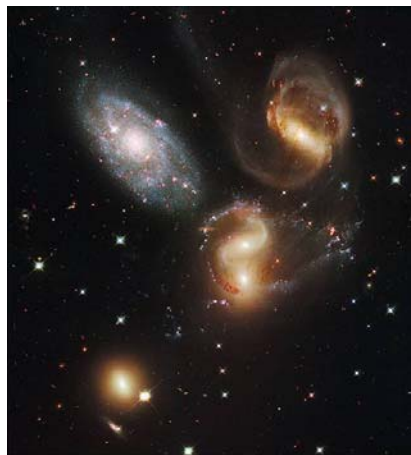
I can only thank Chip with all my heart and mind for leading the way – the hero who never gives up!!

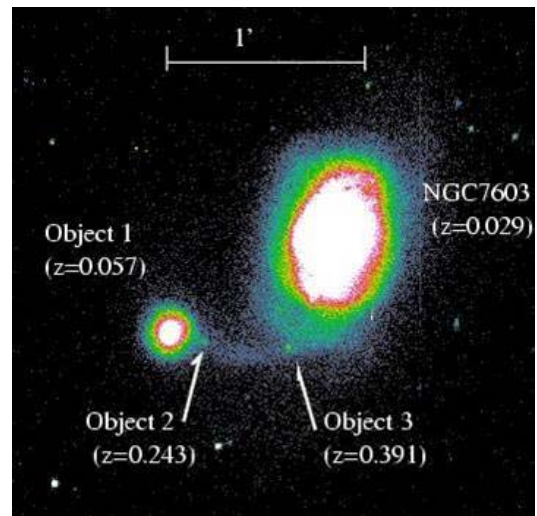


As a summary I would like to show quickly a few of the outstanding galaxies with extraordinary quasar alignments discovered in the last decade. And on a few occasions, I am proud to say that I was present with Chip and others in the process. The music accompanying the slideshow is my soundtrack for the German/Swedish film and TV series “Sophie’s World”- Enjoy and Thank you.









In the name of NPA, *Peter Marquardt* outlined the background of the Sagnac Award

These are the key words of this part of our Award ceremony in honor of Halton “Chip” Arp:

Natural Philosophical Alliance (NPA)

Sagnac

2011 Sagnac Award

and

Halton „Chip“ Arp

We'll look at them in this order.

Who is NPA?

Founded 1994 in San Francisco, the Natural Philosophical Alliance is a non-profit organization dedicated to support science off the beaten path. The Alliance is now (as of March 31) approaching a number of 300 members world wide, most of them residing in the USA

NPA holds annual meetings in various places in the US, the 2012 meeting (# 19) will take place in Albuquerque.

Since 2004 the meetings are documented by Proceedings.

(# 8 edited in 2011 is the size of a phone book, with 700+ pg!)

In addition, NPA offers weekly video conferences on various topics and has a very active internet presence (look it up under *worldnpa*)

NPA has become the logo for an open-minded community of independent thinkers which welcomes critical contributions opposing mainstream dogma where critique is definitely needed.

Who was *Georges Marc Marie Sagnac*?

This French physicist (born 1869, passed away 1928) is mainly known for his ingenious (1913) experiment which was to become the basis of the gyro laser technology. The experiment consists of a rotating platform allowing variable frequencies. Two opposite light beams are sent around to be reflected by 4 mirrors and made to interfere. Unlike the Michelson Morley experiment, the experiment yields an undisputed fringe shift in proportion to the area enclosed by the light beams and the rotation frequency.

No one less than *Albert Abraham Michelson* proposed this experiment. Some sources tell us the result was predicted by no one less than *Max von Laue*, *Einstein*'s close friend and defender of special relativity (SR). *Von Laue* discusses the experiment in his book “*Spezielle Relativitätstheorie*”. Relativists, if they bother to mention the Sagnac effect at all, are not bothered by it – but they should be!

Von Laue is also our source to a German physicist, *Franz Haess*, who had performed a similar experiment (1909 – 1911) before *Sagnac*'s publication. This does not belittle *Sagnac*'s important contribution, as he was the first to fully realize the physics behind the experiment.

For more detail about the *Sagnac* effect, you may consult the 1967 Article by *Evert Jan Post*, one of NPA's 2010 *Sagnac Award* winners (Rev. Mod. Physics **39** (1967) 475 ff)

In some sources, *Sagnac* is also quoted as the discoverer of Xray fluorescence. But in general, his name is rather avoided in textbooks.

Little is known about himself and his life.

While there are zillions of photos of *Uncle Albert* (guess who this is?), we do not find a single one portraying *Georges Sagnac*!

In 2013, NPA will certainly pay tribute to the *Sagnac Effect* at the occasion of its 100th anniversary.

Why is this *special Award* named after *Georges Sagnac*?

We read: *Sagnac* « était un opposant ardent à la théorie de la relativité » (*David Pratt*)
Sagnac's name, in spite of all efforts to reconcile his result with SR, puts us automatically opposite to relativists and Big Bangers, i. e. of mainstream physicists and therefore in turn puts him, *Sagnac*, automatically on the list of the unsung hero.

The *Sagnac* experiment (like that by *Michelson–Morley* and all like experiments dealing with light and light interference) requires a *unique* reference (*Franco Selleri*, quoted on p. 255 in our present Award winner's great *Seeing Red* – we shall come back to this book).

Uniqueness indeed is the clue to the *Sagnac Award* and its winners.

The *Sagnac Award* is an Award for the “*unsung hero*” (like *Georges Sagnac* was himself) and as such is a Lifetime Award for outstanding work outside the beaten paths.

Quote from the NPA website:

In honor of the many significant contributions to alternative science, the NPA will present its Annual Sagnac Award to three deserving scientists. Any individual whose lifetime work contributes substantially to science or technology outside the confines of mainstream paradigms could be eligible for the Sagnac Award, regardless of nationality or educational background. The award namesake, French physicist Georges Sagnac (1869-1926), was an associate of Nobelists Pierre and Marie Curie, Jean Perrin and Paul Langevin at the Sorbonne in Paris. Sagnac conducted experiments in 1913 demonstrating a net difference between light paths moving in opposite directions on a rotating platform. Many alternative scientists believe his 'Sagnac Effect' challenges the theories of Sagnac's contemporary, Albert Einstein. Yet in spite of its challenge and repeatability, Sagnac's experiment receives only passing mention, if any, in physics textbooks, and little is known about Sagnac himself. So just as Sagnac was not recognized for his major contributions, the Sagnac Award is intended to honor those unsung heroes making largely unrecognized, but significant contributions to science today.

Why this design of the Award?

Created by two very active officials of the Natural Philosophy Alliance:

David Scott de Hilster and *Greg Volk*, the design features three interlocking rings to symbolize matter circulating in three loops, a possible ring model for the electron as proposed by *Alfred Parson*, *Arthur Compton* and other early 20th century scientists. This outsiders' model was revived and elaborated by physicists attending off-mainstream workshops, among them *David Bergman*, *J Paul Wesley* and *Bill Lucas*.

Why is this Award so important?

As a motto for the *Sagnac Award* it suffices to quote the famous American anthropologist *Margret Mead*:

“Never doubt that a small group of committed people can change the world. Indeed, it’s the only thing that ever has.”

Why are its winners so important?

That is even easier to answer: We are here to honor *Halton “Chip” Arp* as a great example to give a conclusive answer to the question why science needs dissidents.

But, should we accept the label “dissidents”? I’d prefer to call them *upstream swimmers* who make an effort to go courageously back to the sources when and where nobody else does!

Why is our present Award Winner so outstanding?

This brings us to *cosmology*. Cosmology provides the scientist with the biggest laboratory ever, a laboratory continually looking greater and greater. Nothing is better suited to teach us an important part of true science: *Modesty*!

But instead, Nature’s biggest lab has been subdued to an anthropocentric view nourished by religious views (we remember *Abbé Lemaître* being at the beginning of the creationist story of a finite Universe that had a definite beginning about which mainstream physicists claim to know so much.)

Human self-confidence went so far as to consider an infinite and eternal Universe a “cosmic humiliation”!

Claiming to know what happened within the *Planck* time (some 10^{-43} secs!) after everything exploded out of nothingness is not exactly a sign of modesty; putting the Universe into much less than a nutshell isn’t, either.

No wonder that this model has been called the “Big Bang” (BB).

The BB is literally speaking the *biggest jump* at conclusion (more fitting would be: jump at conjectures) ever! (An even bigger jump than believing a light beam is more rigid than a steel construction as has been the case subduing the Michelson-Morley result to the weird interpretation à la SR!)

The BB has become a religious type dogma, an expensive one, too, considering the poor taxpayers’ money blown away for the BB.

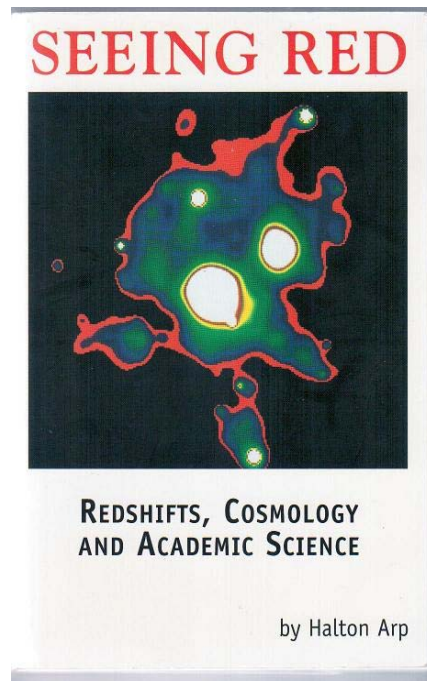
The BB threw physics way back before *Copernicus*, *Galiliei*, *Kepler* who pioneered a scientific escape from the anthropocentric view

How come BB has become the sole candidate to account for redshifts found in cosmology? The *Doppler effect* has been a source of fatal misunderstandings since it was taken over by questionable theories readily accepted and applauded by the mainstream community.

In our case, the message of critiques reads:

It is not all Doppler that reddens in astronomy

And this brings us to *Halton Arp*’s



... a brilliant example how a textbook should be written!

The list of reasons making it such an outstanding textbook is impressive:

Its

Scientific Contents is impeccable

The readers learn a lot about

“...science as it should be – observational evidence presented in spite of the fact there is no currently believable cause“ (p. 268)

and about cautiousness in science

“In our model the universe is an indefinitely large substrate into which our awareness is expanding. This means we might experience a surprise at any moment – or eventually.” (p. 252)

A very instructive concise glossary for the interested layman invites everybody to participate in the author’s science

plus *Critique* where desperately needed

Controversies are the backbone of true scientific struggles. Mainstream textbooks never touch this point – “*Seeing Red*” offers a rich variety of scientific struggles.

“Science is failing to be self-correct. We must understand why in order to fix it” (p.

plus *A treasury of Anecdotes and Quotes* – a very entertaining journey with the author!

plus *Sentences of wisdom and psychological insight*

“Writers who move the culture say that the surest way to kill writing ability is to work in a Literature Department. Even seminal workers closer to science such as Galileo, Freud or Gropius would obviously stick in the throat if an academic institution” (p. 273)

plus *An Insider’s Look at Academia*

Chapter 10 Titled *ACADEMIA* is a very special treat to your readers!

They take part in your personal experience in the strange world of Academia

plus *Irony and Satire!*

plus Last not least its *Wonderful Title!!!* Witty and Amusing!

In total:

A textbook *comme il faut*!

A book for both the critical scientist and the open-mouthed interested outsider to enjoy
It reaches beyond the problem with mainstream cosmology – it gives insight into the machinery of “Academia”

Your previous book

“*Quasars, Redshifts, and Controversies*”, dear Award winner, even brought you the applause of a non-cosmologist, too!

Seeing Red, p. 138: “When the author of 2001 later wrote me an enthusiastic letter about my iconoclastic book *Quasars, Redshifts, and Controversies* I was thrilled beyond expression”.

Halton Arp’s style is simply wonderful.

In internet, we find a good choice of quotes by the late *Tom van Flandern*, a fellow truth seeker and strong advocate against the BB like our present Award winner. These quotes would all be among my favorites.

Look them up under *Tom*’s book review of “*Seeing Red*” that jokingly starts with the smiling eye-catcher DON’T READ THIS BOOK.

Here are some more appetizers (up to everybody to find their own favorites in the book):

“The establishment always confuses data with theories” (p. 21)

“My first image was of my colleagues in false beards and dark glasses sneaking into the meeting room” (p. 22)

“My ever-naïve plan to win some attention got the observations ... was greeted by remarks like...: “The proposed mechanism for the energy is wildly speculative. (From this I conclude that the high-energy radiation comes out of nothing is less speculative!)” (p. 139)

“It has slowly percolated through me since then that there is a world of difference between the imagination of a good science fiction writer and the average professional scientist” (p. 140)

The “Anti-Copernican Embarrassment” (p. 195)

“The best information by far came from a series of articles in the *New Yorker* magazine. I was fascinated that this literary, upscale, sophisticated humor magazine would do a more thorough and meaningful presentation than the large circulation science journals.” (p. 263)

“I would propose that there were two obvious principles of scientific communication:

- 1) Publish all sides of an issue.
- 2) When there are differences in opinion, the author has the final decision on what he wishes to say.

Editors routinely violate these two principles.” (p. 271)

“So why can great physics and cosmology only be produced at a lavishly funded institution? The answer is that it isn’t – which is the whole point of the preceding book.” (p. 273)

And there’s the turtle anecdote on p. 61. And... And... Enjoy reading *Halton Arp*’s book!
He demonstrates that *humor* beats resignation and belongs to the upstream swimmer’s toolbox and survival kit!

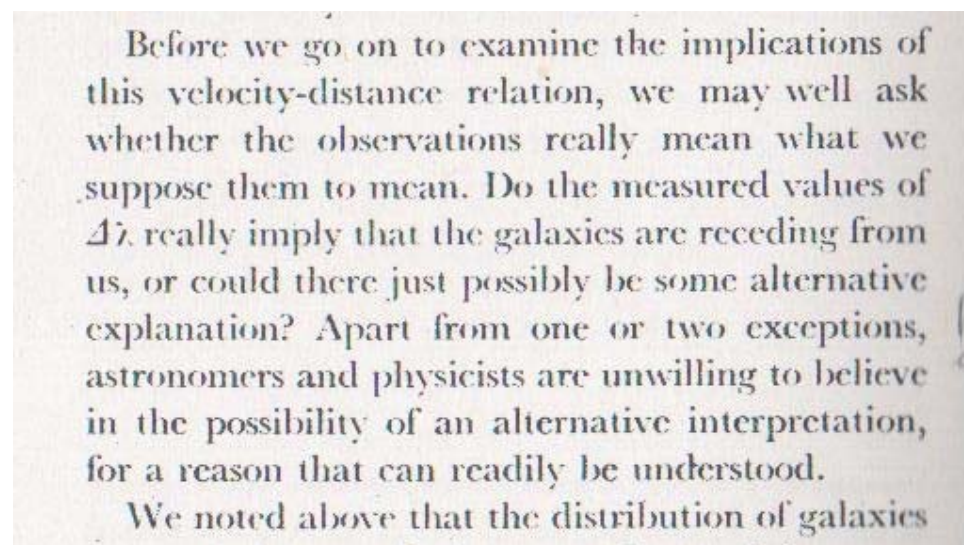
Our present Award winner's *career* is indeed exceptional with prizes and awards preceding his Sagnac Award:

"Halton Christian Arp received his Bachelors degree from Harvard College in 1949 and his Ph.D. from California Institute of Technology in 1953, both cum laude. He is a professional astronomer who, earlier in his career, conducted Edwin Hubble's nova search in M31. He has earned the *Helen B. Warner Prize*, the *Newcomb Cleveland Award* and the *Alexander von Humboldt Senior Scientist Award*. For 28 years he was staff astronomer at the Mt. Palomar and Mt. Wilson observatories. While there, he produced his well-known catalog of "Peculiar Galaxies" that are disturbed or irregular in appearance. Arp discovered, from photographs and spectra with the big telescopes, that many pairs of quasars (quasi-stellar objects) which have extremely high redshift z values (and are therefore thought to be receding from us very rapidly – and thus must be located at a great distance from us) are physically connected to galaxies that have low redshift and are known to be relatively close by. Because of Arp's observations, the assumption that high red shift objects have to be very far away – on which the Big Bang theory and all of "accepted cosmology" is based – has to be fundamentally reexamined."

Upstream swimmers are a minority – but they make a fine community joining forces
And they have strong support on their side joining forces.

It is rewarding to visit Halton Arp's official website and read about his "*Work with Fred*" (who is no one less than *Sir Fred Hoyle* who had *ironically* coined the term BB!) Under the headline "What have we done to Science?" we find amusing insights. The 1st paragraph ends with *Hoyle's*: "They defend the old theories by complicating things to the point of incomprehensibility."

In his 1962 popular book "Astronomy" [Rathbone Books Ltd, London; Library of Congress Card No. 62-14108], *Hoyle* very cautiously discusses the issue of the "expanding Universe". We find an interesting quote on p. 294:



Before we go on to examine the implications of this velocity-distance relation, we may well ask whether the observations really mean what we suppose them to mean. Do the measured values of $\Delta\lambda$ really imply that the galaxies are receding from us, or could there just possibly be some alternative explanation? Apart from one or two exceptions, astronomers and physicists are unwilling to believe in the possibility of an alternative interpretation, for a reason that can readily be understood.

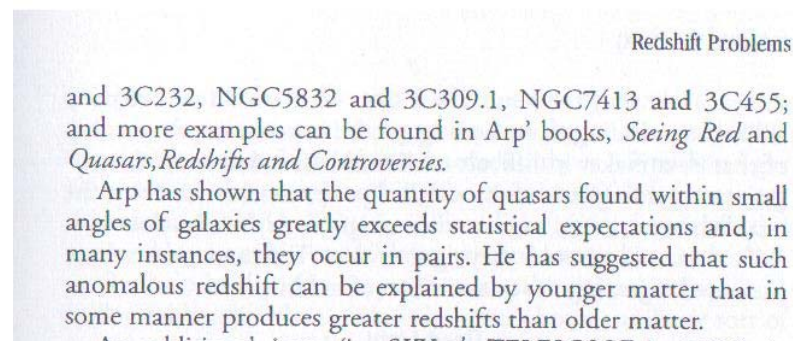
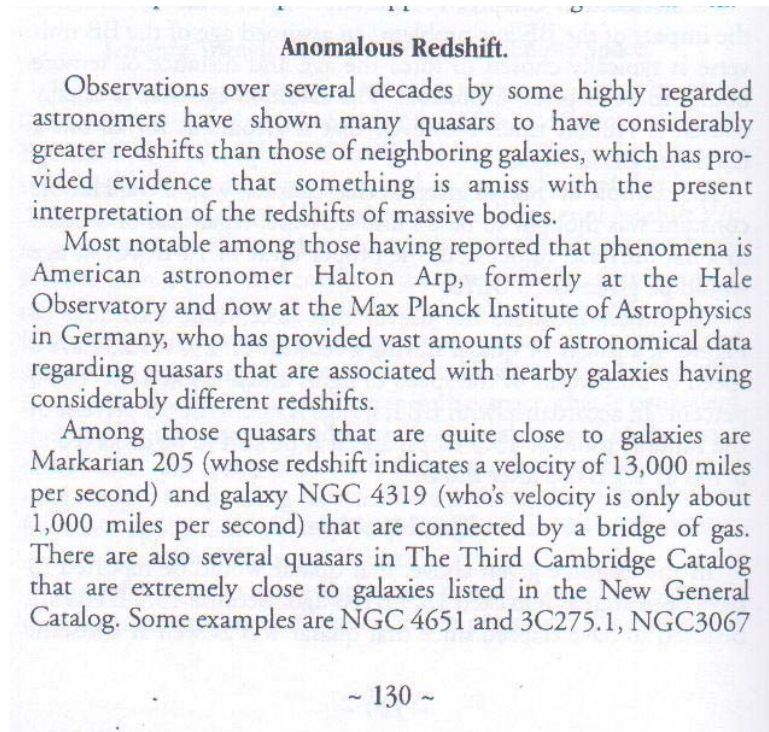
We noted above that the distribution of galaxies

I wonder whether mentioning one or two exceptions *Fred Hoyle* meant himself here and our Award winner??

Halton Arp's work is acknowledged by other fellow truth seekers, too.

E.g. *William C. Mitchell* in his book "*Bye Bye Big Bang*"

[Cosmic Sense Books, Carson City, Nevada, 2002; ISBN 0-9643188-1-4] p. 130:



Outnumbered by some hundred Nobel laureates in physics, there are less than a dozen *Sagnac* laureates, representing an exquisite club.

Speaking of Nobel Prizes:

It so happens that the latest Prize for "...the discovery of the accelerating expansion of the Universe through observations of distant supernovae "

exactly demonstrates why your work is so important and proves you were rightfully chosen for *Sagnac Award*. The choice could not be more fitting!

Its purpose could not be more fitting, either, which brings us to your

Lifetime Achievement

In recognition of a lifetime commitment to excellence in scientific pursuit. For the discovery of intrinsic redshift in numerous galaxies, for the definitive and exhaustive cataloging of all known galaxy types, and for explanations of these unusual phenomena in terms of solar ejections and plasma behaviors.

Welcome to the exquisite club of Sagnac Award winners, dear Chip!

Thank you for standing up against *dogma* and thank you for being a *noble example*
Future generations of upstream swimmers will appreciate your achievement!

And thanks to your wife, *Marie-Helène*, for being at your side.

As a tribute from far away friends and colleagues, *Andreas Otte* and *Peter Marquardt* presented some

Greeting Addresses

Mel Acheson

When I was young and stupid and studying astronomy, I was warned not to get mixed up in philosophy. It was a waste of time, and it would ruin me as a scientist. Richard Feynman said that philosophers were always on the outside making stupid comments.

I didn't listen. Now I'm old and stupid and not a scientist. But I found there was one advantage to being outside the bag of science – I could read the label: 100% pure steer manure. I don't mean that to be dismissive: It's useful. It fertilizes the growth of new ideas.

Mel Acheson

A Cautionary Tale

When Paleolithic hunters left their caves on the mountainside to chase the Paleolithic hamburgers across the plain (this was before the McPaleoBurger franchises), the Paleolithic astronomers on top of the mountain noticed this correlation:

The farther away the hunters ran, the smaller and fainter they appeared. By measuring a hunter's apparent size and using Paleolithic trigonometry, the astronomers could calculate how far away the hunter was.

That's easy to do with a pocket calculator, but the only silicon-based device these old geezers had in their pockets was rocks. It took a lot longer to calculate with rocks. The old geezers looked for a shortcut.

One astronomer noticed that the farther a hunter ran the more fatigued he became and the redder his face got. Simply by measuring how red in the face a hunter was, the astronomers could determine how far away he was. They called it the redface – distance relationship.

* * * *

With the invention of the telescope, modern astronomers turned their gaze toward galaxies. They noticed that some appeared large and bright, others appeared smaller and fainter. That triggered a

primal memory of their ancestors observing hunters running across a plain: Perhaps smaller and fainter were indications of farther away. If only there were some easy-to-measure property that could be associated with smaller and fainter, astronomers could determine the distances to these galaxies.

And they found one! By passing a galaxy's light through a prism, it would split up into all the unique colors produced by each element that radiated the light. The astronomers noticed that the smaller and fainter a galaxy was, the more the colors of each element shifted toward the red end of the spectrum. They were thrilled. They only had to measure this redshift of a small galaxy to determine its distance.

This validated the ancestral memory. Without bothering to test it, they proclaimed the redshift – distance relationship and went out to celebrate.

This was a mistake. They had forgotten the rest of the redface–distance story.

* * * *

The Paleolithic defense industry began using the Paleolithic astronomers' redface – distance relationship to ascertain how close invading tribes were. The Warrior in Chief trained the guards to respond to size and color: small and dark-red meant far away and therefore low alert – keep chewing on your burgers; large and light-pink meant nearby and therefore high alert – grab your spears.

One day a tribe of pygmies from the other side of the plain painted their faces dark red and attacked the Paleolithic astronomers' mountain.

That is why there are no Paleolithic astronomers left today.

* * * *

When modern astronomers went out to celebrate the redshift-distance relationship, Halton Arp stayed behind. He looked more closely at some of the peculiar galaxies, and he noticed that a lot of small, faint objects with much higher redshifts seemed to cluster around them. What if, he wondered, these high-redshift objects are nearby and really are smaller and fainter? What if they've somehow just painted their faces red, intrinsically?

"Hey, guys," he called out, running after the celebrants. "Guess what I found."

But they didn't want him to spoil their party: So they closed the door and locked him out.

Today, the small, faint, redshifted – and nearby – objects are popping up all around us, even in front of some of the big, bright galaxies. They portend an invasion of new theories, and the modern astronomers are lying in the sawdust drunk on their hasty conclusion. The few who didn't join the party now have an opportunity to take a sober second look.

Amy Acheson

Amy Acheson nominated Halton Arp in 2005 shortly before her death to be the Galileo of the 21st century. I second her nomination. She wrote:

Halton Arp is to the 21st century what Galileo was to the 17th. Both were respected scientists, popular leaders in their field. Both made observations which contradicted the accepted theories. Seventeenth century academics felt threatened by Galileo's observations and so, backed by ecclesiastical authority, they ordered him to stop looking. Twentieth century astronomers felt threatened by Arp's observations and so, backed by institutional authority, they ordered him to stop looking.

Both refused. Both published works geared to the non-specialist when specialists would no longer take note. Galileo's paper, "A Dialogue on the Two Chief Systems of the World," favored a heliocentric model of the solar system and undermined the accepted geocentric model.

Arp's books, Quasars, Redshifts and Controversies, Seeing Red, and Catalogue of Discordant Redshift Associations, favor a steady-state model of the universe and undermine the accepted big bang model.

The Church responded by placing Galileo under house arrest: his peers would not even look through his telescope and the Church judged his books heretical. The modern astronomical community responded similarly to Arp. Observatory officials cancelled his telescope time and astronomical journals refused to publish his research.

How did these men create such a furor?

Galileo introduced a simple new concept that changed the universe as it was known then. Arp introduces a simple new concept that will change the universe as we know it now.

Seventeenth Century educators taught that the Earth was the center of the universe. The Sun, the moon, the planets and the stars revolved around it. Galileo confronted his contemporaries with a universe centered around the sun. If you had lived in Galileo's time, would you have been willing to examine his work?

Today's educators teach that the universe started from a big bang 15 billion years ago and has been expanding ever since. Galaxies and quasars are scattered according to their redshift. Arp confronts us with a universe of ejected galactic families. You live in Arp's time: are you willing to examine his work?

Wallace Thornhill

I was alerted to the great significance of Halton (Chip) Arp's work in the 1990's by Mel Acheson and his late wife, Amy, both of whom had trained in astronomy and later became great supporters of both Arp and my work on the electrical nature of the universe.

I have no doubt that Chip will be vindicated as a "modern Galileo" for his discovery that the visible universe is not expanding and is of unknown age and extent. His galactic 'genealogy' has a profound message for us with its biological overtones. The comparison with Galileo Galilei is fitting when it is realized that the 'big bang' expanding universe cosmology is no more than a modern pseudo-religion where the faithful are unwilling to see any evidence that contradicts their beliefs.

I was privileged to meet Chip on two occasions. The first was in Portland, Oregon, in 2000, when a remarkable convergence of ideas from a number of disciplines occurred that embraced Arp's discoveries and supported the Electric Universe cosmology.

My second meeting was in London later the same year. In the morning Chip addressed the Society for Interdisciplinary Studies. I was scheduled for the afternoon and since Chip had to leave to visit Sir Fred Hoyle, we had lunch together.

Sadly, it was not long enough to allow me to discuss how well the philosophical issues that Chip discusses in the last chapter of his book 'Seeing Red' match the conclusions of the Electric Universe.

So it is my wish that the growing influence of the Electric Universe amongst natural philosophers, scientists, engineers and the educated public will lead to the recognition that Chip Arp deserves for revealing our true place in the universe.

So it is entirely fitting that the Natural Philosophy Alliance recognize Halton Arp with the Sagnac Award now, in advance of mainstream Science.

My heartiest congratulations Chip!

Wal Thornhill

From *Tom Phipps*, your old friend and 2010 Sagnac Award winner:

My father used to speak of an independent thinker as one who "wore no man's collar," When I think of Halton Arp, it seems to me that the phrase was invented to describe him. The fact that NPA honors Arp confers equal honor on both. The occasion marks a great day, not only for dissident science, but for science without an adjective.

Best, Tom.

From *C. Roy Keys*, your faithful publisher:

C. Roy Keys

A Tribute to Halton Chip Arp at the Occasion of his Sagnac Award

How to take the measure of a man who is simply beyond compare? When other astronomers might weary of the search or are distracted by prospects of immediate gain, Halton Arp persists in the quest for a more coherent description of the Universe. When the censors bear down on him for his pronouncements against the orthodoxy in cosmology, he finds a way to circumvent the strictures imposed on him, sharpening his critique with renewed determination. When his observations raise a theoretical dilemma, he inspires his allies to resolve the anomaly with a new synthesis. He is a figure who has towered over his discipline like few before, yet his achievements over the past decades have gone largely unrecognized by academia. It is only fitting that his contribution to the science of cosmology be celebrated with the NPA Sagnac Award today.

After Chip (a nickname by which he has been known since childhood) graduated from the little red schoolhouse on the Charles (aka Harvard), he moved to Caltech for his graduate studies, where he worked under Hubble on the latter's research into novae. The powers of concentration and observation he developed in detecting the emergence of new stars in M31 would later serve him in his own research program, while some of his mentor's scepticism about the Doppler interpretation of redshifts may have rubbed off as well. During his subsequent 28-year tenure as staff observer at Mount Wilson and Mount Palomar, he produced his highly acclaimed *Atlas of Peculiar Galaxies*, which opened an entirely new era of research into galaxy evolution. It was in the course of the same work that Arp began to identify the anomalous associations between pairs of high redshift quasars and low redshift galaxies that would soon emerge as the chink in the armour of the Big Bang theory—the contradiction that would disprove the hypothesis that redshift was a phenomenon caused by recession velocity in an expanding universe. The discovery of these discordant redshift associations formed the basis of a collaboration with the late Sir Fred Hoyle and Hoyle's student, Jayant Narlikar, that would last almost 30 years.

Halton Arp's work did not come to my attention until about 1980, when I read an article about him in the popular journal *Astronomy Magazine*. The article title characterized him as a "maverick," which,

while perhaps an apt term, is hardly an exhaustive characterization of the man. It was only shortly afterwards that he began to be denied access to the major US telescopes. The fortuitous offer of an Alexander von Humboldt Senior Scientist Award brought him to the more receptive academic environment of the Max-Planck Institut für Astrophysik, where he has remained since 1984. In the preface to *Seeing Red*, Arp's exhaustive treatment of the dilemma of modern cosmology from the standpoint of his observations, he expresses his gratitude to a few of his colleagues in Munich—Rudi Kippenhahn, Hanz-Christoph Thomas, and Wolfgang Pietsch—for their support. The move to Garching also opened up a new source of extragalactic images, the MPE X-ray telescope, which was to prove decisive in confirming the anomalous associations which Arp had been studying optically. He even confided to me that he would occasionally pull prints from the wastebaskets of his colleagues for study, some of them forming the basis of journal articles. I sometimes wonder whether the Institute's janitor, like Milton Humason before him at Mount Wilson, should have been credited in Arp's publications.

When, a few years after we had co-edited, with Konrad Rudnicki, the conference proceedings that became *Progress in New Cosmologies: Beyond the Big Bang*, Chip approached me with the proposal to publish the monograph that became *Seeing Red*, we agreed to meet in New Haven, Connecticut during one of his frequent trips to the US to visit family, and talk over the idea while attending the Harvard-Yale football game. As I recall, we seated ourselves high in the grandstand of the Yale Bowl on one of those cold, wet late autumn days that send chills to the very marrow, not paying a great deal of attention to the outcome of the game (though I imagine Harvard won, as it usually does). We then moved to my apartment in Montreal for a few days to organize the figures and begin editing the text for the printer. What impressed me most at that time was his meticulousness in arranging a vast body of data into a comprehensible narrative, as well as the ease with which he could discern the meaningful details on each plot or photo. On another occasion a few years later I asked him how he was able to pick out the cosmologically significant elements in a deep sky exposure when others would fail to spot them, he pondered for a moment, and with a mischievous gleam in his eye, answered: "If I have been able to see farther, it is by standing on the shoulders of Jayant."

Chip was always a great sportsman, and on this subject he can no doubt tell you much more than I can, especially about his exploits running the Taft School's single-wing football formation. I recollect a trip to Ottawa where Chip had been invited to speak at the Herzberg Institute. We were hosted by Paul Marmet, who showed us around the Institute, and while we were dining at the National Defence building across the street from the Institute, Paul introduced us to the venerable Nobel laureate, Gerhard Herzberg himself. If we had known at the time that many years earlier—more than 50 years earlier, in 1941!—Dr. Herzberg had discovered 2.3 K radiation emanating from cyanogen molecules in interstellar space, a discussion of the implications of this finding might have ensued at the luncheon table, and the science of cosmology might have taken a very different course. In the event, the only drama during the day transpired when Chip and Paul withdrew to Dr. Marmet's club, ostensibly for a game of tennis. When they left, and upon their return, they were engaged in animated discussion. I wonder if they even bothered to take out their racquets. Science obviously always took precedence over everything else.

So strong is Chip's dedication to promoting his views of cosmology that he would never miss an opportunity to attend a meeting, however small and seemingly insignificant. One of his few admirers in the field of astronomy, the late Toivo Jaakkola, once organized a small workshop at a cabin by a lake in southern Sweden. Even though Chip and Toivo did not see entirely eye-to-eye on the matter of redshift mechanisms—Toivo, who had studied under Jean-Claude Pecker and Jean-Pierre Vigier in Paris, was of the tired light persuasion, while Chip adhered to Hoyle's hypothesis of age-dependent mass variation—Chip readily agreed to attend the event, along with myself and Dave Roscoe from Sheffield, in spite of the fact that he had also been invited to the annual Nobel dinner in Stockholm later in the week. We spent a delightful few days immersed in discussion seated at the rough wooden table or clustered around the wood stove in the cabin, dining on delicious fare prepared by a friend of Toivo's—a menu that included reindeer meat! On the final day, the four of us packed ourselves into a dilapidated old Skoda for the hour and a half drive to the harbour in Helsinki, where Chip boarded the overnight ferry to Stockholm. After we had deposited Chip at the ferry dock, no sooner had we embarked on the return drive but the car broke down, and we found ourselves stranded in a rainstorm in downtown Helsinki for the afternoon. I don't think we ever revealed to Chip just how close he came to missing his dinner with the King of Sweden. Toivo used to say of Chip that he was the modern Galileo: whereas the father of modern observational astronomy discovered the moons of Jupiter, Chip's contribution has been to identify quasars as the moons of galaxies.

I said earlier that the Sagnac Award was a fitting tribute to Halton Arp's lifetime of dedication to science. This is true in more than one sense. Dr. Arp's observations have revealed the fault in the wall of evidence that sustains the Big Bang theory, just as the experiment conducted by Georges Sagnac undermines the edifice of special relativity. More than this, the toroidal shape of the award, whose interlocking rings are intended to evoke both the form of the Sagnac experiment and the ring model of the electron advanced by Compton and other early researchers, may prove crucial to an understanding of the structure of the enigmatic quasars, if not galaxies themselves.

Finally, I should like to express my pride and honour to be associated with a scientist of Halton Arp's moral and scientific integrity. I congratulate him heartily on the receipt of this award, and extend my very affectionate wishes for a Happy Birthday.

Handing out the Award to its 2011 winner

Dear Chip Arp, at NPA 18, we regretted that you could not receive the Sagnac Award in person. Now is the time to make up:
Please accept this Award in the name of NPA and its members as a symbol of our high esteem.

