

# The observer

*Summarize yourself in the form of a title of a paper in Nature.*

Vera Rubin studies how stars orbit their galaxies and how galaxies move in the Universe.

*What was your first experiment as a child?*

Two chunks of ice on a sunny step with a black cloth over one and a white cloth over the other, to watch which one melted first. I was impressed.

*Who has been the most important mentor in your career?*

My husband.

*Whose graduate student would you most like to have been?*

I wrote my PhD thesis under George Gamow, and it's hard to better that. Publicity arising from my Cornell MA thesis prompted Gamow, a physics professor at George Washington University, to call me to discuss the space distribution of galaxies. His piercing questions prompted me to arrange to write my PhD thesis under Gamow's direction.

*What book has been most influential in your scientific career?*

The *Hubble Atlas of Galaxies* by Allan Sandage (1961), because the stunning images added to the puzzles that galaxies provide.

*What gives you the most job satisfaction now? What are your major frustrations?*

Satisfaction: observing, and continuing to learn new things about galaxies. Frustration: too much e-mail.

*What's your favourite conference destination?*

Florence, Italy. What other venue combines a science museum containing Galileo's telescope and old globes, with wonderful Renaissance painting, sculptures and great food?

*You have the audience in your hands, but some smart-alec asks you the killer question you have no idea how to answer. What's your response?*  
"I have no idea how to answer."

*What books are currently on your bedside table?*  
*Marie Curie* by Susan Quinn (preparing for the 100th anniversary of Curie's 1903 Nobel Prize in Physics); *Rosalind Franklin* by Brenda Maddox; *Hypatia of Alexandria* by Maria Dzielska; and *The Center of Things* by Jenny McPhee.

*You are on a plane behind two students obviously going to the same conference, who start to talk about your work. What do you do?*

Tap them on the shoulder and tell them I'm listening.

*What music heads the playlist in your car or lab?*  
Anything by Stephen Sondheim.

*Assuming the dead can be raised and/or time travel exists, who from the world outside science would you most like to have dinner with?*

Benjamin Franklin.

*Where and when would you most like to have lived or worked?*

It couldn't be any better than here and now.

*What one thing would you rescue from your burning laboratory?*

Years ago it would have been photographic plates. Now, probably recent telescope logs, although most comments are recorded via computer.

*What do you do to relax?*

Garden.

*What does your garden grow? Have you any gardening advice for busy scientists?*

Usual things, plus three witch-hazel trees: one (native Virginia) blooms in autumn, the other two in late winter. Quite magical. Grow lots of big green leafy things, so the garden mostly looks OK.

*What's the best piece of advice you've received?*

From Harold Urey: "I find that if I forget about my mistakes, everyone else forgets about them too." The worst piece (from another scientist): "It's not worth jeopardizing your career by your activities on behalf of women."

*What would you have become, if not a scientist?*

Miserable and unhappy.

*What's your motto?*

Don't give up; make it happen; ignore bad advice.

*What single discovery, invention or innovation would most improve your life?*

A secret day for me every week, that was not available to others.

*You've just been told (in confidence) that the world will end tomorrow. What do you do next?*  
Suspect that it was not true, but call my husband.

*Why is physics so hard?*

Because of the usually awful way it is taught.

*Which actor would best portray you in a film of your life story?*

I would really like an actress who has studied physics or astronomy if there is such, but I'd settle for Dame Judi Dench. (I aim high.)



## Vera Rubin

Vera Rubin, senior fellow in the Department of Terrestrial Magnetism, Carnegie Institution of Washington, is wife, parent and astronomer, in that order. She and husband Bob have four PhD offspring: two geologists, an astronomer and a mathematician.

*Which field in science (apart from your own) deserves more funding, and why?*

That's too hard — what does 'deserve' mean?

*Oh, go on, give it a try.*

Maybe the science of teaching and learning. Why is it so hard in the United States to raise the reading and maths scores of young students?

*What overlooked or underrated discoveries really changed the science in which you work?*

Women assistants (discovered by Pickering at Harvard) and money (discovered by Hale, who three times was responsible for the largest telescope in the world).

*What's the most interesting thing in your fridge?*

Chocolate. More chocolate.

*Name one extravagance you can now get away with because of your eminence.*

I can get a seat at a crowded seminar, but maybe that's because of my age.

*Due to an unexpected change in Earth's rotation, days now last 25 hours. How would you spend the extra hour?*

Worrying about the change in the length of the day.

*The host at a dinner party has placed you next to God. What would you talk about?*

The origin of the Universe, and why He/She did it that way. Also dark matter.

*If you were reborn as a comic-book superhero, what would be your superhuman power?*

Eyes to see to the origin of the Universe! ■