



The Holy See

**ADDRESS OF POPE JOHN PAUL II
TO THE PARTICIPANTS IN THE MARCEL GROSSMAN MEETING
ON RELATIVISTIC ASTROPHYSICS**

Friday, 21 June 1985

Ladies and Gentlemen, dear Friends.

It is a great pleasure for me today to welcome to the Vatican all of you who are taking part in the Marcel Grossman Meeting on Relativistic Astrophysics. In you I also greet the illustrious institutions that are co-sponsoring this meeting: the International Centre for Theoretical Physics in Trieste, the Departments of Physics of the two Universities of Rome, and the Specola Vaticana. I assure you all of my respect and esteem.

I likewise wish to take this special opportunity to honour the world of science and all the distinguished men and women who contribute to the increase of human knowledge and to the possibilities for peace. Your being here today is one more indication of the common resolution of the Church and science to serve side by side, in friendship and mutual support, the cause of man.

I cordially acknowledge the presence among you of the Nobel Prizewinners, as well as the Ambassadors of the countries represented at your meeting. With deep satisfaction the Church takes note of the solidarity that marks your important meeting and this gathering in the Vatican.

1. We are living in a unique era. There was a time when scientific discoveries having an enormous impact on the development of human society and on the way we see ourselves only occurred every century or so. Now they are made on much shorter timescales: every year, every month, even every week. And, what is perhaps more significant, the impact on technology is almost immediate. In fact, within the last few decades we have witnessed more *basic advances in our understanding of physical reality* than had been made during the entire previous history of our planet. There is strong evidence that this exponential growth of ideas and scientific knowledge will

continue.

It is wonderful to see how much has been understood concerning the structure of stars - their birth, life and death, the origin and structure of galaxies, the formation of the elements and other building blocks of physical reality in the early universe, and the interlocking roles of fundamental interactions and processes, in the large and in the small. *These scientific achievements proclaim the dignity of the human being* and greatly clarify man's unique role in the universe.

It should however be a matter of concern to us that, while science develops at ever-increasing speed, *other fields of human endeavour remain relatively dormant or even regress*. In the absence of a mature interaction between science and the practical and theoretical endeavours of politics, economics, art, philosophy, ethics and theology, the new vision and the new technological powers provided by science can lead to unprecedented human catastrophe. The current inadequacy of such responsible interaction on many levels represents a great "missed opportunity" for creating a new genuine "humanism" of profound depth, beauty, moral and spiritual nobility and personal sensitivity.

2. Interestingly enough, *the glaring divergence* between the pace of development in science and that of other critical areas of human endeavour, especially politics, *is reflected in the personal tragedies of certain scientists* in the service of humanity and of their own nations. Some have been and are giants, not only in their particular areas of scientific activity, but also in their unwavering personal commitment to moral and personal values and to the growth of these values within human society on both the national and the international levels.

The personal misfortunes of these dedicated men and women bear witness to a much larger tragedy experienced by a silent and powerless society. Non-scientists can often suffer even greater *incursions upon their personal freedom and human rights*, but have fewer means of making them known. Basic human rights are not respected in some scientifically and technologically advanced societies. The moral voice and the personal and spiritual sensitivities of scientists and non-scientists alike are at times unheard or simply ignored by those who exercise power.

3. *Science*, however important, *cannot be a substitute for other human activities*. Above all it cannot substitute for faith, moral values, art or political science. The contribution that science can make, through its dynamism and its constant reaching out towards truth, is to give inspiration and a richer physical context or vision to other human activities. It can share with them the results it has derived from its continuing investigations of the universal laws of nature. *Science can finally lead humanity to bow down before the Creator of the universe*, who, from the Christian viewpoint, is revealed as the Redeemer of man.

Today we see here in this programme *two examples of a symbiotic relationship*, in this case

between science and art. The mathematical solutions of the Einstein field equations of general relativity describing the orbits of particles around a gravitationally collapsed object have inspired a sculptor to create an artistic object, while the electromagnetic signals of a pulsar, the compact remnant of a supernova explosion thousands of years ago, have provided the inspiration for a composition of classical music.

4. Apart from your scientific work, what is most significant about this gathering is that scientists representing more than thirty nationalities are here *working and discussing together*, addressing in fraternal solidarity some of the most challenging and basic questions ever put to the human mind.

No nation can be isolated. No nation can afford the luxury of having other nations do all its thinking for it! Nor should any nation hoard for its own exclusive advantage the rights and contribution of its scientists.

Every nation, no matter how advanced or how small, needs to participate in this work, in this quest, and in this dialogue. Each country, each person, is nourished and ennobled by doing so. And in turn each contributes something very special to the study of these problems from his or her own background, culture and world view. Your individual and collaborative work and thinking manifest in so many ways the extraordinarily rich and precious character of human nature, which is having and will continue to have a crucial impact on the world and on society at large.

Dear friends: be assured of my prayerful interest in your many challenging and important endeavours. May God, the source of all truth, grant you *profound insights and abundant wisdom*. And may all your achievements contribute to the betterment of society and to the fuller recognition of *the dignity of the human person* who is created in the image and likeness of God.

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