Plasma Physics
High Temperature Chemistry

XR-PP Mission

CONTRIBUTION TO EXTRATERRESTRIAL PHYSICS AND HIGH TEMPERATURE CHEMISTRY

PERT REPORT for NASA-JPL 1981
Author Christian Daniel Assoun

Click here to download the PERT Report

or download from website.

Here are two related reports (also downloadable from website) :

-Here is a related NASA-JPL report on Extraterrestrial Materials Processing

-Here is a report about Lunar Regolith Simulants Materials

PERT Report exhibited the preliminary plan for the necessary technology for Space Colonization.

The merit of this report in 1981-82 consist in the clear vision of Strategic Planetary Resources and Extraterrestrial Industries.

Despite of the age of this document PERT (36 years ago!!), the prominent projects and technologies has been seriously exposed, waiting for the moment of the beginning of Moon Colonization and to Mars.

We are proud to modestly introduce in the Space Adventure some ideas and Industrial road map, for future decades. By now International Agencies among them NASA-JPL are prepared to do the job.

Some Plasma Physics Introductory links followed by some discussion on High Temperature Chemistry in Space.

You will be directed to a link where you can download J.A. Bittencourt book, "Fundamentals of Plasma Physics" here.

You will be directed to some information about High Temperature Plasma here

About plasma you will be redirected to some information here

About plasma diagnostics, you will be directed to some information here

You will be directed to some information about Space Sciences at NASA JPL here

You will be directed to some DoD Space Physics here

You will be directed to some information about Sun Modelizations (Core-MHD-MGD-Nuclear Chemistry Genesis) here

You will be directed to some information about Sun and Stars Energy here

About the dynamic of conducting gases (MHD, MFD, MGD) you will be directed to some information here

About Atoms in plasma, you will be directed to some information here

Now some information about High Temperature Chemistry in Space

All terrestrial chemistry concerning inorganic and semi-organic chemistry, is based on the use of "normal water" under terrestrial gravity according to standard conditions and pressure with as external medium N2 / O2.

These exceptional conditions favorable to the chemistry of life and catalysis do not exist as such on the celestial objects which surround us and therefore the classical chemical reactions are not simply obtained or applied, a new CHEMISTRY must be born.

PLASMA CHEMISTRY LOW and HIGH temperature (patents 2006-USPTO 2016/PCT Phase)

Plasma chemistry will allow the extraction of rare gases (He, Ar, Xe ...) from lunar rocks or other planets, moons and asteroids, but also the most important and vital raw material of all WATER in different forms in rocks, sand or ice.

Note: When the gravitational conditions are very far from the basic experimental conditions in order to bring natural isotopes and ions with H2O into contact, artificial centrifugal stations will be proposed allowing the creation of chemical salts essential for chemical, biological and agronomic engineering. Plasma chemistry makes it possible to create alloys and chemical reactions on the earth in the absence of water, as happened on certain planets including the earth at the very beginning of the GEO-CHEMICAL activities .

Water should be considered as a molecule with very special and interesting thermodynamic and quantum properties. Thermodynamic studies associated with MagnetoHydroDynamic MHD conditions allow, depending on the magnetic susceptibilities and Curie points, to select the best catalytic species(included Ln3+) in order to seed the plasma including the regulation of the plasma LTE and PLTE zones.These methods complement the reports described by NASA JPL (materials processing 1981-82-83 and the PERT report communicated to NASA-JPL in 1981-82 Christian Daniel Assoun as adviser for JPL-NASA (W.H.Steurer- J.R.Carruthers).

PLASMA CHEMISTRY on objects When high-temperature or low-temperature plasma chemistry has provided raw materials of technical purity, these raw materials will be introduced on-site or transported to a HELIOTORR PERT (REFINING) station for refining in the various grades of purity required by manufacturers. REFINING ON ASTEROIDS patents 2006-2016 USPTO/PCT Phase. The method of refining(on place) by plasma methods and isotopic separations and selections is the only one applicable on asteroids. The deep space conditions in which asteroids are found are fully adapted to isotopic separations.