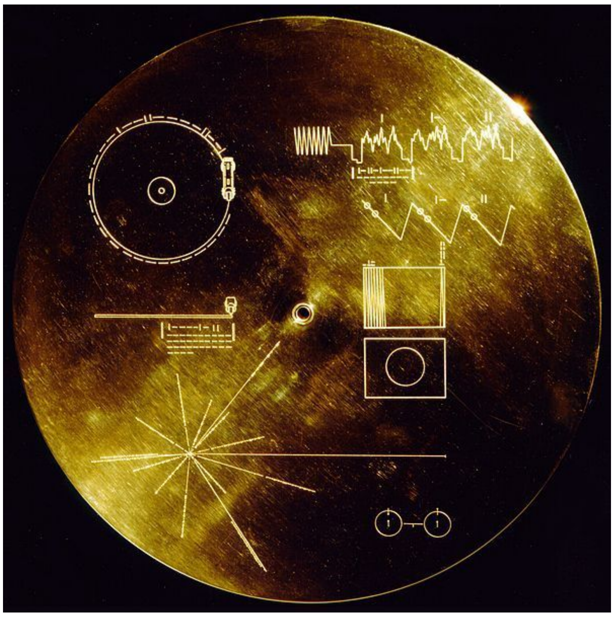
INTELLIGENT ROBOTICS

Laboratories of Simulants

XR-IR MISSION



This mission is crucial for the good development of colonization and settler lives

The goal of the XR-IR mission is to design the processing and information technologies that will enable us to assume GlycanSpaceXR missions on planets and their moons and in the first place the Moon of our Earth.

Definition of "INTELLIGENT ROBOTICS" according to GlycanSpaceXR

"Intelligent Robotics" means any installed hardware or software organization (binary and / or Qubit type) in a static and / or dynamic human-built structure able to fulfill intelligent tasks.

By static one means (a control and control center), strategic center, a warehouses, data center a plant installed (versatile) on the Moon or in orbit around a celestial object, a data security center on celestial object on the surface, under dome or underground.

By dynamics we mean a spacecraft, a submarine, an asteroid assisted by plasma motors, a helium-filled or hydrogen-filled aerostat (oxygen-free outer atmosphere) - used for the exploration of planets and moons.

By dynamics we mean also a robot able to assist man in these displacements and missions, its morphology being suitably adapted to mission tasks.

All technological bases exist on earth but with regard to GlycanSpaceXR Agency XR-COL mission, it will be necessary to develop and adapt them for the creation of:

Executing Robots assigned to:

XR missions: SDR-ETMR-SPACI-PRESS-SSD-COL-SHIELD-PROP-GENESIS

Mission Analyzer Robots assigned to:

All GlycanSpaceXR missions or those of external missions entrusted this Agency.

Decision makers (analysis and provisional execution of an order):

It is necessary to develop the proper “Decision Maker” robots and softwares that will led the proper realization of the missions. The global integrity of the main missions and of a collateral missions crucially depend on this.

As a matter of security priority: The decision makers Robots will not qualified to participate (except in exceptional cases) in XR-MED or XR-SSD defense operations. Exception cases are decided by specialized and accredited settlers in these areas.

There will be multi-entry software that allow to send secure orders that will be analyzed and then accepted, rejected or requested for details and confirmation, depending on the related level risks and level accreditation concerned.

The refusals are motivated and call for competencies levels that only the settlers themselves have programmed and secured in advance. This possibility of refusal comes first and at the end only properly accredited human officers will decide after analysis.

In the phases of refusal or stand-by orders, several settlers may intervene to confirm or decline orders in orbital conditions, moons or planets, so as not to compromise the missions, in case of conflict with the decision division, a division of the Board of Appeal records the procedural incident and the decision will be judged by a colonist or settlers with a higher degree of accreditation.

It is necessary to have both completely independent functioning for each robot and a properly secured information transfer gateways that will be secured at the responsibility of agents, helped if needed by analytic tools. (MEDIATORS)

There cannot exist in a colony on celestial object or in orbit, orders or decisions that may disrupt an entire decision while such a decision will whatever have to guaranty the safety of the colony.

Robots in general will be equipped with Quantum Machines **(XR-QM Mission)** mission, 16 qubits would basically do some tasks, classical computers could also be used, coming years quantum computers will be necessary for the global safety of the Colony.

Various countermeasures to neutralize possible attacks will be necessary, as well for the programming and software side as for the hardware side.

EM (Destruction of intrusive software) by transporting EM loads on attacking site (physical electronic path or remote space way) consult (**XR-SSD Mission)**.

INTELLIGENT ROBOTICS

It is obvious that the banking world as we know it on Earth will have to be both adapted and profoundly modified for Space.

Since these activities will be new and carried out in a new framework (planets, moons), economic rules will be different, economic resources being produced differently in a virgin setting and whose history will begin when the men, machines and robots produce an industrial factory.

A major awareness is needed for all international land actors to set new economic rules in the solar system (consult **XR-LAW** mission).

The banking world will have to be adapted and changed accordingly and a new CURRENCY will have to be installed which will not have compulsory parity with terrestrial currencies, since the activities in the solar system are new and carried out by new actors. We will both have to economically safe Earth on the one hand and economically safe the outer space in a coherent way.

A new generation of Industry and Economy for the Solar will be born!

These are themes and reflections that will have to be taken into account in the next SPACE Laws.

These political or ethics themes are not part of our study.

Robots of human proximity

Human proximity robots are specially programmed to help and to control the vital constants (among other missions) of settlers and astronauts and CREWS (long treks) but also the colonists directing industrial programs or medical. This robots will "guardian angel" security vigilance levels.

The first priority of this robots, if not permanent safety, is enhanced prevention.

For example, the Human Proximity Robot will be equipped with a quantum-type controller currently being developed by two American universities, which will be able to check if the BBB (Blood Brain Barrier) has been compromised and if chemicals have disrupted certain brain lobes frontal lobe, seat of decision and command, this will be a real-time pharmacodynamic analysis safety.

Apart from the first priority of those robots that is Human Safety the second priority will be Human Comfort and Well Being.

Laboratories of "Simulants" for Extraterrestrial Mining and Refining.

Luxembourg and California Pasadena

EXISTENCE OF PLASMA IN THE SOLAR SYSTEM

IN ORDER TO

JUSTIFY THE CREATION OF LABORATORIES OF SIMULANTS

Preliminary note:

We consider that the best way to understand the geochemistry of terrestrial planets is to create simulant laboratories using plasma technologies since plasma exist in celestial objects.

The dynamics of molten rocks (magma in motion) in the Terrestrial, Microgravity conditions or in Deep Space should inform us about the para-magnetic properties of certain elements (Fe-Mn-Co-Ni, others -) and the display of an abnormal magnetism above of Curie points.

The presence of Silicon should inform us if there is a circulating electrical charge within the magma.

-PLASMA SEEDED WITH REGOLITHES

-PLASMA SEEDED with separated components CO2-CO-Al-Mg-Si-Fe others (Enthalpy of formation) at ionized conditions.

-MAGMA RELAXED

It will be interesting to study the formation of electric and / or magnetic fields following the high velocity ejection of magma, previously seeded in a plasma, NPLTE areas should have magnetic and electrical properties.

-MAGMA Influenced by an MHD system

Due to the external and internal temperature (core)of 5500 K (PLTE) telluric objects, only the interpretation of associated plasma states allows us to understand the kinetics of magmas.

SUN external temperature 5700 K - internal 14.10^6 K

As a result of the phenomena related to the accretion disk, all the materials were in the form of plasma at the time of the creation of the proto solar cloud, it is possible that several phenomena have been in competition, namely plasma relaxation (entropy) and the gravitational forces which were strong enough to retain and compress hydrogen and its isotopes and Helium. They are actually found by spectrometry of the heavier elements Silicon and Magnesium and rare gases, but it is possible that heavier elements were the object fission and are currently represented by rare gases.

OTHERS OBJECTS IN THE SOLAR SYSTEM IN THE ACCRETION DISC

Earth, Planets and Moons, non-telluric planets.

EARTH temperature core 5200 K

An accretion disk has been formed and many objects have been created including earth (telluric planets) and moons.

For giants gaseous planets the theory of their solar origins (materials expelled from the sun), is not demonstrated, these planets do not possess a solid core of metal of the transition metal series Fe-Co-Ni-Mn others.

Nucleogenesis leads to heavy isotopic elements, these isotopes of the giant gases of the elements of the series of transition elements are not found in the nucleus.

It could appear that the gravitational instability conditions were responsible for the formation of these giant gases, the masses of proto-materials He, H (gases-liquid-solid) was not strong enough to produce a fusion and lead to nucleogenesis and a solid core.

All the hypotheses are to be debated, and might be the presence of several disks of accretion in the same big one disk, could explain the gravitational instabilities.

Nuclear gases could have remained in a gigantic space and thus the nucleation by fission and / or fusion could begin and give rise to heavier elements such as Boron, Carbon, Silicon and then transition elements.

The cooling of the atomic species then created could have given rise to mixed compounds such as silicates and radioactive products., formations of compounds such as carbonates and silicates.

At the beginning of solar system formation, the Sun should be considered as giant nuclear source, the matter was concentrated in the hole of its cosmic genesis.

The Martian and the Moon REGOLITHES are comparable in composition but not in radioactivity.

The following NASA study of 142 pages is an enormous work indispensable to future man or unmanned colonization missions on different planets and moons, we deliver some significant and important extracts hereafter:

The Moon soil regolithes are considerably less radioactive than the Martian soil.

In 500 days, the Martian soil receives the equivalent of the lethal dose that affected the first “technicians cleaners” on TCHERNOBYL.

Men and Robots must be seriously protected

The consequences are simple regarding the colonization of Mars (XR-COL Mission).

An Agronomy on Martian soil, even under dome, represents a permanent danger for the crops and the man who will consume them.

Conventional nitrogen fertilizers or other nutrients will be affected by ionizing radiation and toxic free radicals will be generated in soils , leading to significant toxicity.

<u>The solution might be as follows:</u>

-Excavation of the Regolith layer over 30 cm - transformation of the Regolith into vitreous plates which can be used in the Martian or orbital constructions, the neutralization of the radioactivity of the plates is not part of a study.

-When the regolith layer has been removed the culture is possible in situ.

-Agronomy on Mars soil under dome or underground are conceivable.

-These crops may be competitive or associated with hydroponic crops.

NASA Report EXCERPT REGOLITH SIMULANT MATERIAL PROCESSING

NASA/TP—2006–214605 Lunar Regolith Simulant Materials: Recommendations for Standardization, Production, and Usage L. Sibille and P. Carpenter BAE

Systems, Analytical & Ordnance Solutions, Huntsville, Alabama R. Schlagheck and R.A. French Marshall Space Flight Center, Marshall Space Flight Center, Alabama

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Quote:

"2. LUNAR REGOLITH SIMULANT MATERIAL NEEDS 2.1 Introduction Lunar samples returned from the Apollo missions represent diverse geological materials and processes and have been studied in considerable detail using numerous characterization techniques. Developing lunar simulants presents a challenge in matching terrestrial materials to lunar soils and rocks. Existing lunar simulants such as JSC–1 and Minnesota lunar simulant- (MLS–) 1 have been utilized as engineering test materials with primary emphasis placed on determining geotechnical properties and secondary emphasis on supporting chemical and mineralogical analysis. Implementation of a comprehensive suite of SLRS materials for use in the development of all surface technologies for lunar operations will require a diverse set of mineral, rock, and synthetic materials, coupled with processing technologies and characterization by both geotechnical and chemical/mineralogical techniques. Presented in this section is a brief roadmap coupled with development requirements for lunar simulants that support anticipated NASA missions. Lunar soils are comprised of materials that are predominantly basaltic and anorthositic , reflecting mare and highland source regions, respectively. Meteorite impact events have mixed these materials over large areas and have produced significant fragmentation, melting, and glass formation. These actions are evidenced in the texture, chemistry, mineralogy, and presence of significant glass fraction as well as vapor-deposited reduced iron (Fe). Lunar simulants can, in principle, be matched to lunar source materials by means of selecting root components that, when mixed and processed appropriately, duplicate the characteristics of the lunar target materials. Potential root simulants are basalt, anorthosite, mineral and glass separates, and size-fractions such as dust and Fe nanophase material. Based on trace element chemistry, meteoritic material clearly exists in lunar soils and represents a challenge in identifying equivalent terrestrial materials to use as meteorite simulants. Quantitative modeling of root simulant materials to match Apollo soil chemistry can be

performed by choosing sets of simulants and then determining a least-squares fit to the Apollo bulk chemistry and iterating the mix proportions. Primary goals of the 2005 Workshop were to determine which lunar regolith materials need to be simulated, and the accuracy with which the simulant needs to match the target lunar material. 2.2 Lunar Exploration Architecture A clear definition of the lunar exploration architecture is needed to give technology systems developers and researchers the proper framework within which they can create the technologies and surface systems required to enable the Vision for Space Exploration.3 Research and development of required lunar operations technologies rely on decisions such as the choice of lunar landing sites, the short- and long term objectives of a human presence on the Moon, and the studies that must be conducted on the lunar surface to provide experience in preparation for human missions to Mars. These decisions will affect the selection of types and quantities of lunar simulant materials that are required to support the overall exploration effort. At the time of the writing of this TP, the authors are aware that the range of human and robotic activities taking place during lunar surface missions has yet to be defined as part of an accepted architecture of the lunar exploration effort. Sections 2.3 through 2.6 describe the functional elements that are expected to be part of such exploration architecture. These descriptions are based on the Vision for Space Exploration and recommendations and guidelines of recently published NASA documents, such as the Exploration System of Systems Technical Requirements Document, and the Robotic Lunar Exploration program (RLEP) Requirements Document. Reports of NASA-appointed study teams such as the Lunar Exploration Analysis Group (LEAG) and the Exploration Systems Architecture Study (ESAS) team have also been consulted (G. Taylor, Private Communication, January 19, 2005).3–6 2.3 Lunar Exploration Systems Requirements NASA's return to the Moon is part of the larger framework of a sustained and affordable space exploration architecture that will extend the human presence across the solar system. The lunar missions will pursue three main objectives: (1) Advance scientific knowledge of the solar system and the universe through exploration of the lunar environment and geology, (2) learn to identify and use in situ resources to sustain human missions to the planets, and (3) acquire operational experience on the lunar surface to prepare for human missions to Mars and beyond. The RLEP plans to accomplish several robotic missions in lunar orbit and to the lunar surface as precursors to human landings. The Lunar Reconnaissance Orbiter (LRO) will be the *first of these precursor missions anticipated to be launched in 2008 to map the lunar surface and subsurface in order to advance lunar science, identify mineral resources, and characterize the surface environment for future landings by orbital remote sensing. Such global mapping will enable the selection of safe landing sites for human short-duration and outpost missions. The presence of resources of high interest, such as polar water ice in permanently shadowed areas or oxygen-bearing minerals, will be confirmed and quantified by acquisition of in situ ground truth data using robotic landers and rovers. These unmanned missions may also be used to support later human missions by deploying communications and navigation, power, and other infrastructures. The extraction and transformation of confirmed in situ resources will first be demonstrated at small scale to validate technologies before their use as part of long-duration stays on the lunar surface. This may lead to requirements for larger scale resource extraction and processing if they are determined to be economically beneficial and result in accrued mission safety. These requirements include but are not limited to the excavation of surface materials for radiation shielding, production of propellants and life support gases, and the production of materials for human habitation. The successful realization of such an infrastructure on the lunar surface will rely on the performance of a range of specialized systems capable of operating for long periods of time in the extreme lunar conditions. Many surface systems will face the challenges of dealing with the lunar regolith in unprecedented ways, including surface traversing (rovers, hoppers), drilling, excavating, crushing and transporting of regolith, introducing regolith into chemical processors, and mitigating dust accumulation. These technical challenges are made more formidable by the lunar environment; i.e., low gravity (1/6 g), low vacuum (10–12 Torr), very wide temperature ranges (–230 to 120 °C), and alternating 14 Earth-day-long nights and days. While the challenges are great, these capabilities will also make possible the extraction of materials for in situ habitat construction and repair and fabrication of energy-producing devices from lunar materials. Such a sophisticated infrastructure would be essential to realize a truly sustainable space exploration architecture. The Moon will become a test-bed for systems to be used in the exploration and human habitation of the Martian surface. Systems will be deployed on the lunar surface to practice the techniques required by autonomous and manned systems to be used later on Mars. Operational experience and validation of technologies in the lunar environment will be sought to reduce risks for missions to Mars."*

End of Quotation.

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IR INTELLIGENT ROBOTICS

Simulants laboratories on Earth will be indispensable to know the ideal mixtures of minerals in order to participate in the mining and refining operations on Moon-Mars others.

This expertise will be used to explore deep layers beyond 1000 meters on Moon or Mars.

Robotics will be indispensable, as there will be PERT plasma tools on the Moon and March, the delicate maneuvers of which will have to be entrusted to intelligent robots.

On Earth laboratories experienced in drilling, excavation, construction, using PERT plasma tools will represent the setting up of an indispensable expertise to qualify resources and Industrial Robots.

The robots will have to know the basic XRF and spectrometry spectral data and will have to make the decision to continue a drilling or excavation or vitrification of regolithes.

Specialty coatings will be installed on the exoskeletons of the Robots in order to protect them from residual solar radiation and solar radiation.

The aging of polymers is exactly known in the face of UV or radiation, as well as metal alloys or oxides containing impurities including oxygen or fluorides.

The vital zones of the robots must be insensitive to EM fields because they are equipped with computer software.