BIOLOGICAL MATERIAL

LASER PLASMA X-RAY POINT SOURCE

Available For Licensing

INSTITUTE OF INTELLECTUAL PROPERTY

RESEARCH & DEVELOPMENT

PROPOSED TECHNOLOGY

Technology relates to a Laser Produced Plasma System for X-ray generation. Particularly relates to targets coated with structured biological materials.

➢ Laser Plasma System comprising

• A Laser producing source

• A **Target comprising a biological material selected from cells of microbial, protozoan or plankton origin as a coating on a solid target forming a target** system that absorbs intense laser pulses, generates hot dense plasma and results in the emission of X-Rays.

• System of optical elements for targeting the laser beam on target

• Detectors and

• Vacuum chamber containing the target system and system of optical elements.

PATENT STATUS

PCT Published Patent Pending Technology with number: PCT/IN2009/000632

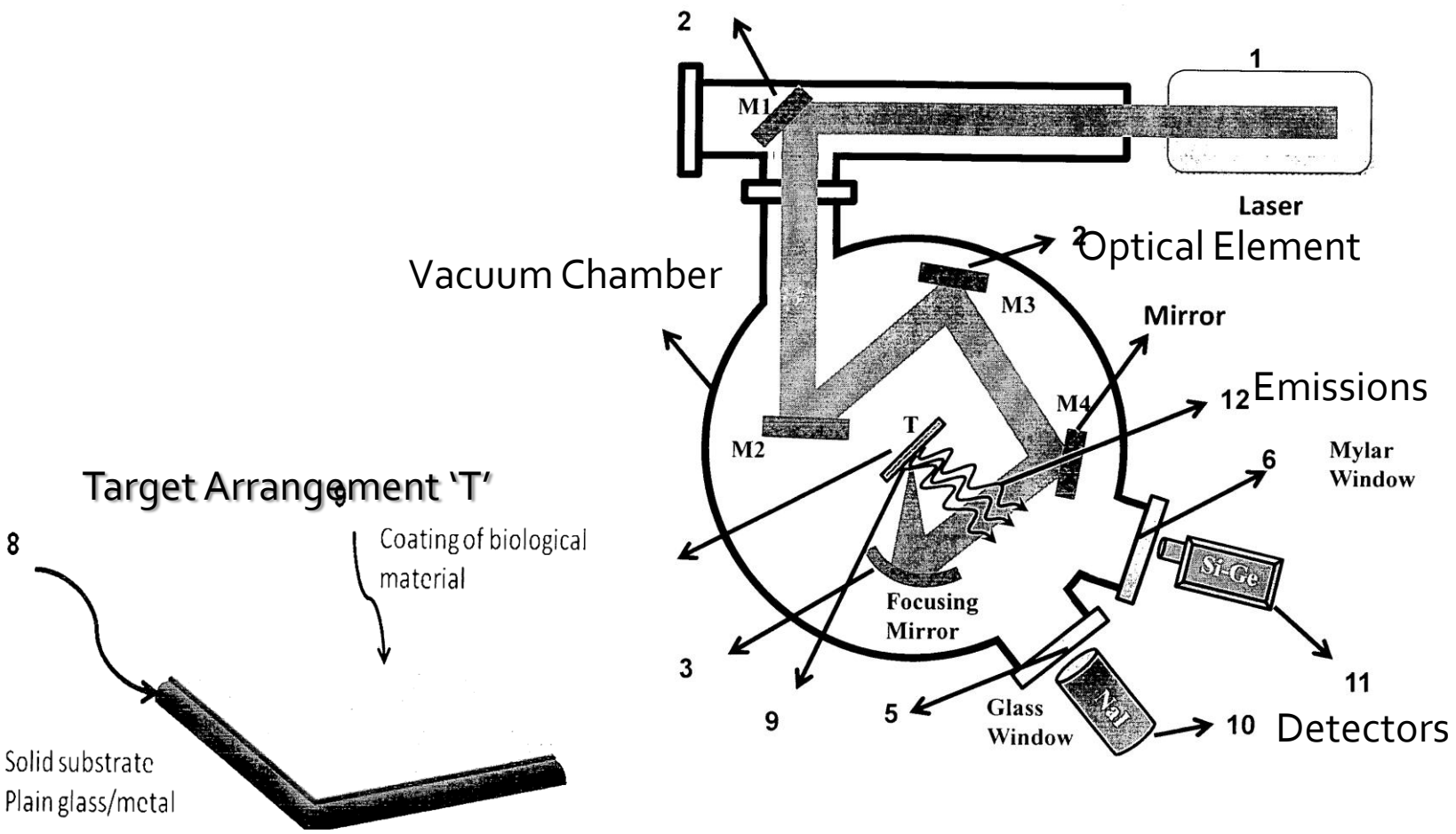
ADVANTAGES OF PRESENT TECHNOLOGY

- Enhanced X-ray yield
- Target system preparation is easy and inexpensive
- Environmental friendly and non-toxic.
- Emission of radiation over a wide spectral range wavelengths down to 0.004 nm
- Plasma energy range of about 35 to 60 keV.
- Free from high z-metal debris.

APPLICATIONS /USESOF THE INVENTION

- Lithography
- Radiography
- Cancer Therapy
- Biological and material microscopy
- Imaging
- Non destructive testing among other applications.

Diagram Showing System and Target Material Arrangement



AVALIABLE TARGETS AND THEIR DISADVANTAGES:

Different target materials/systems are used for the absorption of laser radiation and plasma generation

- Planar solid surfaces.
- Tape cartridges as targets.
- Frozen gases.
- Micro droplets of liquids
- Liquid metal among others.

Most of the above target systems have their own disadvantages as mentioned below

- Planar solid surfaces absorbs only a small fraction of incident light and scatters/reflects most of it.
- Most of the above mentioned targets are expensive.
- Requires sophisticated engineering and material processing method.
- Complicated design of vacuum systems to maintain required low pressures
- Use high z-metals which are not environmental friendly.
- Requires safe disposal systems

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