

























THANK YOU FOR VISITING NIF!

THE NATIONAL IGNITION FACILITY (NIF) IS THE WORLD'S LARGEST AND HIGHEST-ENERGY LASER SYSTEM. BY PROVIDING THE CAPABILITIES TO ACHIEVE FUSION IGNITION AND BURN IN A LABORATORY SETTING, NIF IS A CRITICAL EXPERIMENTAL FACILITY FOR THE NATIONAL NUCLEAR SECURITY ADMINISTRATION'S STOCKPILE STEWARDSHIP PROGRAM AND IS A KEY INTERNATIONAL SCIENTIFIC RESOURCE. NIF IS USED TO UNDERSTAND ISSUES ABOUT HIGH ENERGY DENSITY SCIENCE AND TO EXPLORE ASPECTS OF ASTROPHYSICS, MATERIAL SCIENCE, PLASMA PHYSICS, AND MANY OTHER AREAS OF DISCOVERY SCIENCE.

ADDITIONAL INFORMATION IS AVAILABLE ON THE NIF & PHOTON SCIENCE WEB SITE AT LASERS LLNL GOV.



WRITTEN AND DRAWN BY



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WANT TO KNOW MORE ABOUT NIF?

WHAT IS NIF?

THE NATIONAL IGNITION FACILITY (NIF), LOCATED AT LAWRENCE LIVERMORE NATIONAL LABORATORY, IS THE WORLD'S LARGEST LASER. NIF'S 192 POWERFUL LASER BEAMS, HOUSED IN A 10-STORY BUILDING THE SIZE OF 3 FOOTBALL FIELDS, CAN DELIVER NEARLY 2 MILLION JOULES OF ULTRAVIOLET LASER ENERGY IN BILLIONTH-OF-A-SECOND PULSES ONTO A TARGET ABOUT THE SIZE OF A PENCIL ERASER. NIF BECAME OPERATIONAL IN MARCH 2009.

WHAT IS NIF USED FOR?

NIF ENABLES SCIENTISTS TO CREATE EXTREME STATES OF MATTER, INCLUDING TEMPERATURES OF 100 MILLION DEGREES AND PRESSURES THAT EXCEED 100 BILLION TIMES EARTH'S ATMOSPHERE. NIF SUPPORTS NATIONAL SECURITY, FUNDAMENTAL SCIENCE, ENERGY SECURITY, AND NATIONAL COMPETITIVENESS MISSIONS.

HOW MUCH POWER AND ENERGY DO NIF'S 192 BEAMS PRODUCE?

ON JULY 5, 2012, NIF MADE HISTORY WHEN ITS 192 BEAMS DELIVERED MORE THAN 500 TRILLION WATTS OF PEAK POWER AND 1.85 MEGAJOULES OF ULTRAVIOLET LASER LIGHT TO ITS TARGET. THAT'S 1,000 TIMES MORE POWER THAN THE UNITED STATES USES AT ANY INSTANT IN TIME.

WHO USES NIF?

NIF USERS INCLUDE RESEARCHERS FROM DEPARTMENT OF ENERGY NATIONAL LABORATORIES, UNIVERSITIES, AND OTHER U.S. AND FOREIGN RESEARCH CENTERS.

WHAT IS IGNITION?

IGNITION OCCURS WHEN THE ENERGY LIBERATED FROM THE EXTREME HEATING AND COMPRESSION OF THE NIF FUSION FUEL EQUALS OR IS GREATER THAN THE AMOUNT OF ENERGY THE 192 LASER BEAMS DELIVER TO THE TARGET TO START THE FUSION REACTIONS. ACHIEVING IGNITION AND ENERGY GAIN IS ONE OF NIF'S CHIEF MISSIONS. IGNITION WILL PROVE THE SCIENTIFIC FEASIBILITY OF INERTIAL CONFINEMENT FUSION AS A CLEAN SOURCE OF ENERGY.

CAN I GET A JOB, SUMMER INTERNSHIP, OR POSTDOC POSITION WITH NIF? WE ARE ALWAYS INTERESTED IN ATTRACTING GREAT TALENT TO JOIN OUR TEAM. YOU CAN FIND INFORMATION ABOUT CURRENT JOB OPENINGS, INTERNSHIPS, AND POSTDOCTORAL OPPORTUNITIES ON THE LLNL CAREERS SITE.

STUDENT INTERNSHIP PROGRAM

THE NIF AND PHOTON SCIENCE DIRECTORATE OFTEN HAS OPPORTUNITIES FOR UNDERGRADUATE AND GRADUATE-LEVEL STUDENTS TO ENGAGE IN CUTTING-EDGE SCIENTIFIC RESEARCH TO FURTHER THEIR EDUCATIONAL AND RESEARCH GOALS. THE STUDENT INTERNSHIP PROGRAM CAN PROVIDE UNDERGRADUATE AND GRADUATE STUDENTS RESEARCH OPPORTUNITIES IN LASERS, PLASMA PHYSICS, ELECTRO-OPTICS, SOFTWARE DEVELOPMENT, AND OPTICAL, X-RAY, AND NUCLEAR INSTRUMENT DEVELOPMENT AND TESTING. STUDENTS WORK ALONGSIDE SCIENTISTS AT ON-SITE LASER AND NUCLEAR FACILITIES IN THE AREAS OF ADVANCED LASER DEVELOPMENT, LASER PLASMA INTERACTIONS, HYDRODYNAMICS, MATERIAL SCIENCE, RADIATION PHYSICS, AND VARIOUS DIAGNOSTIC SYSTEMS. TO LOOK FOR OPPORTUNITIES, GO TO THE LLNL CAREERS PAGE AND SEARCH FOR NIF!

PLEASE VISIT LASERS.LLNL.GOV FOR MORE INFORMATION ON LASERS AND NIF!

lasers.llnl.gov





