isamp
NEWS LETTER

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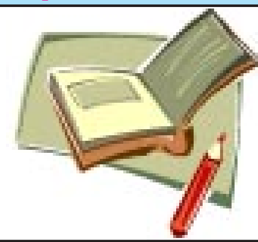
April 21, 2005



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CONTENTS

FROM THE EDITOR'S DESK

After a long gap, ISAMP Newsletter is coming to your mailbox. The intervening period was too long. There are many of you for whom the Newsletter is coming for the first time. In this span of time, the society also has witnessed sweeping reforms in the field which are too many to be recounted here.

We hope to sustain this activity for long period and look forward to your valuable support. Needless to say, this activity can not thrive without regular inputs from all of you.

For the moment, the debate over the content and style of the Newsletter is set aside. We believe that the paramount issue is to put back the Newsletter business on rail and let it evolve in its own way. We are sure, we will be receiving many constructive suggestions from you which will be implemented, or attempted phase-by-phase in the forthcoming Newsletters.

However it is important to identify the thrust issues which will set a trend. These could be broadly classified into a few sections.

1. It is important to share the information of your work to the other members. Therefore, we propose to have an '**Abstract Section**" in every Newsletter. We invite abstracts of your recently submitted papers (preferably those awaiting acceptance in journals) in this section.
2. **Regular articles** are invited from members. These articles should not be too specific in nature; they should be understood by the average reader. The focus should be on current developments in the area of atomic, molecular and optical physics.
3. **Query Forum:** Members can post queries with reference to their research work seeking solutions to unresolved issues. These queries could be technical or non-technical.
4. **Letters:** Members are encouraged to write letters to the editor which will be published in Newsletter. This activity will hopefully strengthen mutual interaction between the members. These letters should have "Letter to the Editor" in its subject line.
5. **Participation of companies:** We try to rope in contributions from companies on purely non-commercial basis. They could be a great source of information, keeping us abreast with the technological development, marketing resources and strategies. They could also provide us regular articles of interest to wider section of members.

Apart from these, regular announcements and other society activities also will be posted time to time.

It is assumed that members have access for downloading and printing at their end. It is extremely cumbersome and expensive to print the Newsletter, so we request your cooperation by not asking us to send a print copy unless it is absolutely necessary due to resource constraints at your end.

With a lot of hope and aspirations, we present the first issue of the web-based Newsletter.

K.P. Subramanian
EDITOR, ISAMP Newsletter
April 21, 2005

Large Scale CIV3 calculations of fine sturcture energy levels, ocsillator strengths and lifetimes in Fe XIV and Ni XVI

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Abstract

We have performed large scale CIV3 calculations of excitation energies from ground states for 109 fine-structure levels as well as oscillator strengths and radiative decay rates for all electric-dipole-allowed and intercombination transitions among the $(1s^2 2s^2 2p^6)3s^2 3p(^2P^o)$, $3s3p^2(^2S, ^2P, ^2D, ^4P)$, $3s^2 3d(^2D)$, $3p^3(^4S^o, ^2P^o, ^2D^o)$, $3s3p(^3P^o)3d(^2P^o, ^2D^o, ^2F^o, ^4P^o, ^4D^o, ^4F^o)$, $3s3p(^1P^o)3d(^2P^o, ^2D^o, ^2F^o)$, $3p^2(^1S)3d(^2D)$, $3p^2(^1D)3d(^2S, ^2P, ^2D)$, $3p^2(^3P)3d(^2P, ^2D, ^4P)$, $3s3d^2(^2S, ^2P, ^2D, ^4P)$, $3p3d^2(^1S)(^2P^o)$, $3p3d^2(^1D)(^2P^o, ^2D^o, ^2F^o)$, $3p3d^2(^1G)(^2F^o)$, $3p3d^2(^3P)(^2P^o, ^2D^o, ^4S^o, ^4P^o, ^4D^o)$, $3p3d^2(^3F)(^2D^o, ^2F^o, ^4D^o, ^4F^o)$, $3s^2 4s(^2S)$, $3s^2 4p(^2P^o)$, $3s^2 4d(^2D)$, $3s^2 4f(^2F^o)$, $3s3p(^3P^o)4s(^2P^o, ^4P^o)$, and $3s3p(^1P^o)4s(^2P^o)$ states of Fe XIV and Ni XVI. These states are represented by very extensive configuration-interaction (CI) wave functions obtained using the CIV3 computer code of Hibbert. The relativistic effects in intermediate coupling are incorporated by means of the Breit-Pauli Hamiltonian which consists of the non-relativistic term plus the one-body mass correction, Darwin term, and spin-orbit, spin-other-orbit, and spin-spin operators. The errors which often occur with sophisticated *ab initio* atomic structure calculations are reduced. Our calculated excitation energies, including their ordering, are in excellent agreement with the available experimental results for both the ions studied. From our transition probabilities, we have also calculated radiative lifetimes of the lowest 37 fine-structure levels in Fe XIV and Ni XVI and compared them with available theoretical and experimental results. The mixing among several fine-structure levels is found to be so strong that the correct identification of these levels becomes very difficult. We predict new data for several levels where no other theoretical and/or experimental results are available. We hope that our extensive calculations will be useful to experimentalists in identifying the fine-structure levels in their future work.

STATUS: Published
Reference: At. Data Nuclear Data Tables **89**, 1 (2005)

Excitation energies, oscillator strengths and lifetimes in Ca IX

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Abstract

We have calculated the excitation energies for the lowest 46 LS and 86 fine-structure levels as well as oscillator strengths and radiative decay rates for the transitions among the $(1s^2 2s^2 2p^6)3s^2(^1S)$, $3s3p(^{1,3}P^o)$, $3s3d(^{1,3}D)$, $3s4s(^{1,3}S)$, $3s4p(^{1,3}P^o)$, $3s4d(^{1,3}D)$, $3s4f(^{1,3}F^o)$, $3p^2(^1S, ^3P, ^1D)$, $3p3d(^{1,3}P^o, ^{1,3}D^o, ^{1,3}F^o)$, $3p4s(^{1,3}P^o)$, $3p4p(^{1,3}S, ^{1,3}P, ^{1,3}D)$, $3p4d(^{1,3}P^0, ^{1,3}D^0, ^{1,3}F^0)$, $3p4f(^{1,3}D, ^{1,3}F, ^{1,3}G)$ and $3d^2(^1S, ^3P, ^1D, ^3F, ^1G)$ states in Ca IX. These states are represented by extensive configuration-interaction (CI) wavefunctions obtained with the CIV3 computer code of Hibbert. From our transition probabilities we have also calculated the radiative lifetimes of singlet and triplet states of Ca IX. Our results are compared with other available theoretical calculations and experimental data. To assess the importance of relativistic effects on our calculated values, we have also carried out calculations in the intermediate-coupling scheme. These effects are incorporated through the Breit-Pauli approximation via spin-orbit, spin-other-orbit, spin-

spin, Darwin and mass correction terms. In order to keep our calculated energy splittings as close as possible to the experimental values, we have made small adjustments to the diagonal elements of the Hamiltonian matrices. The energy splittings of 87 fine-structure levels, the oscillator strengths and transition probabilities for some strong dipole-allowed and intercombination transitions and the lifetimes of some fine-structure levels are presented and compared with available experimental and other theoretical values. Our calculated lifetimes of the relatively long-lived 3p3d(^3F_J) levels show remarkable improvement over the theoretical values of Fawcett, compared to the experimental results of Trabert *et al*. Also, our lifetime for the $3p^2(^1D_2)$ level calculated in intermediate-coupling scheme, while differing significantly from our LS value, shows good agreement with the experimental value and thus confirms the need to include relativistic effects in calculations. In this calculation we also predict new data for several levels where no other theoretical and experimental results are available.

STATUS: In Press
Reference: Physica Scripta (2005)

A Comparison of the triple differential cross sections for double photoionization of H^-, He, and Li^+ at low energy.

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Abstract

In this paper we compare triple differential cross sections for double photoionization of the helium isoelectronic sequence (H^- ion, He atom and Li^+ ion) at low impact energy with E_i/E_0 =1.076 a.u., E_i and E_0 being respectively the incident photon energy and the double photoionization threshold. We restrict to equal energy sharing kinematics but consider both coplanar and non coplanar geometries. Results show marked differences in the shapes of the double photoionization cross sections in the three cases.

Ionization of hydrogen atoms by electron impact at 1, 0.5, and 0.3 eV above threshold

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Abstract

We present here triple differential cross sections for ionization of hydrogen atoms by electron impact at 1eV, 0.5eV and 0.3eV energy above threshold, calculated in the hyperspherical partial wave theory. The results are in very good agreement with the available semiclassical results of Deb and Crothers (N. C. Deb and D. S. F. Crothers, Phys. Rev. A **65**, 052721 (2002)) for these energies. With this, we are able to demonstrate that the hyperspherical partial wave theory yields good cross sections from 30 eV (J. N. Das, S. Paul, and K. Chakrabarti, Phys. Rev. A **67**, 042717 (2003)) down to near threshold for equal energy sharing kinematics.

Forty Years of ICTP Atomic and Molecular Physics Programmes at ICTP

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Introduction

Physicists love to celebrate anniversaries. It enables them to get together, to evaluate, reflect and look ahead. The year 2004 provided one such opportunity from the life of institution. We shall briefly review the origins and achievements of, the Abdus Salam International Centre for Theoretical Physics, in Trieste, Italy, which completed forty years. We shall also look at the programs in the field of Atomic and Molecular Physics at the Centre.

ICTP turns Forty

On 4-5 October 2004, ICTP (Abdus Salam International Centre for Theoretical Physics, in Trieste, Italy) celebrated its 40th anniversary with an international conference, Legacy of the Future. The conference attracted more than three hundred scientists and policy makers from all around the world. Significantly, the conference held a round-table discussion on the future of science in the developing world. It is this concern for the developing world, since its inception in 1964, which makes ICTP unique. ICTP held a "***Conference on Physics of Tsunamis***" in March 2005, which is another evidence of its deep involvement in the developing countries.

ICTP is forever linked to its founder Abdus Salam, a co-winner of the 1979 Nobel Prize in Physics, the founder and long-time director of ICTP. Salam was born in 1926 in Jhang, then part of India. Salam returned to Pakistan in 1951 after a brilliant start to a research carrier in Britain. In Pakistan he experienced the dilemma of trying to perform scientific research and advanced studies in the relative isolation of a developing country. Without access to conferences, journals and other forms of support, Salam took the decision of to leave his home country to continue his work in physics. He joined Imperial College in London and established a research group with extraordinary distinction. Salam's first hand experience in coping with scarce resources and the remote location of his country prompted him to create ICTP with an aim to foster the growth of advanced scientific studies and research in developing countries. Salam's vision has been fulfilled.

Abdus Salam decided to create an international centre dedicated to theoretical physics that would pay special attention to the needs of scientists from the developing world. In 1960, Salam outlined a proposal for the Centre, at the Tenth Annual International Conference on High Energy Physics, in Rochester, USA. The same year he presented the proposal before the delegates attending the General Conference of the IAEA (International Atomic Energy Commission), in Vienna, Austria. Salam's idea met with enthusiastic support from eminent physicists including the Nobel Laureate Niels Bohr (who had earlier expressed reservations about crating CERN, the European Laboratory for Particle Physics, in Geneva, Switzerland). But Salam's ongoing efforts to secure support for the creation of the Centre encountered a series of obstacles set in place by the IAEA's Scientific Advisory Committee (SAC). The Committee, including Nobel Laureate Isidor Isaac Rabi, suggested that the creation of the fellowship programmes at existing centres of theoretical physics could prove more cost-effective and easier-to-implement, than creating a new Centre from the scratch. Committee members also expressed concerns that a centre in theoretical physics would have no practical applications for developing countries struggling to improve their living standards (see Page No.7 in [1]). It is very glaring that Rabi, who had drafted the Florence resolution in 1950, urging UNESCO to create regional science centers, had opposed the creation of ICTP.

Sigvard Eklund, a strong believer in Abdus Salam's vision, was appointed the Director-General of IAEA in 1961. This was the turning point and Salam's idea triumphed. The IAEA soon realized that the new Centre could not be created solely with their own funds. Financial offers came from the governments of Italy with Trieste as the candidate site; from Denmark for Copenhagen; from Pakistan for Lahore; and from Turkey for Ankara. The most generous offer came from Italy and the man behind this was Professor Paolo Budinich, a famous theoretical physicist in Italy. Budinich argued that the Centre would help ease East-West tensions due to the Cold War. After a slow but clear sailing for four years in the corridors of policymakers, Salam's proposal became a reality. On 5 October 1964, a group of high officials, mostly from Italy, joined eminent physicists from around the world for the inaugural meeting of the newly-created International Centre for Theoretical Physics (ICTP). A seminar on plasma physics served as a platform from which ICTP was officially launched. Abdus Salam, who spearheaded the drive for the creation of ICTP by working through IAEA, became the Center's Director. Paolo Budinich, who worked tirelessly to bring the Centre to Trieste, became ICTP's deputy director. Soon UNESCO also joined in extending support to the new Centre. Over the four decades ICTP has accomplished its goals.

Since its birth four decades ago, several scientific bodies have spawned with headquarters in and around ICTP. Collectively, they are known as the "***Trieste Science System***", which include SISSA (International School of Advanced Study); TWAS (Third World Academy of Sciences). Professor C.N.R. Rao is the President of TWAS. ICTP is encouraging science in the developing countries through its various visiting programmes. It is also recognizing their talent through the prizes and medals it has instituted. This is reflected in:

- Around two thousand scientific activities (from introductory schools to advanced workshops) have been organized on the ICTP's premises.
- Around hundred thousand scientific visitors have been to ICTP. About half of them came from developing countries and many of them regard ICTP as scientific home away from home.
- Thousands of research papers have resulted from the work of the ICTP community.
- Almost every physics PhD in the continent of Africa has some link with ICTP.
- Over eighty Nobel Laureates have lectured at ICTP, as well as many prestigious scientists.

In 2004, ICTP had 7134 participants in about fifty meetings totaling to 4327 person-months. 69% came from developing countries. In all 124 countries were represented. ICTP has successfully evolved from a vision to a system [2]. ICTP was renamed as Abdus Salam ICTP on the occasion of Salam's first death anniversary in November 1997.

There is a deep and strange link between ICTP and particle physics. In the year 1964 (the year ICTP came into being) the Nobel Laureate Murray Gell-Mann introduced the term quarks for the sub-nuclear particles. Gell-Mann was inspired by the Dublin born poet James Joyce's poem Finnegans Wake, which had the line "***Three Quarks for the Muster Mark***". Joyce had spent over a decade in Trieste, where he wrote his masterpiece Ulysses. Joyce was driven by rhyme and Gell-Mann by symmetry!

India has a strong presence at the ICTP from the very beginning. Several Indians have served on the ICTP Scientific Council. Many of the ICTP meetings held each year, are directed by Indians. During the period 1970-2003, there have been about six-thousand visitors from India totaling to about ten thousand person-months.

Katepalli Raju Sreenivasan, a distinguished university professor of physics and mechanical engineering at the University of Maryland, College Park, is serving as the third director of the ICTP since 03 March 2003. He succeeded retiring director Miguel Virasoro, who has held the post since 1993. He is the first experimentalist to serve as the director of ICTP. Sreenivasan received his education in India, first at the University of Bangalore and then at the Indian Institute of Science in Bangalore, where he earned a doctorate in aerospace engineering in 1975. He has also been adept at moving between disciplines. He was an engineer by training, but took courses in physics and mathematics, when he was a student. His primary fields of research are fluid dynamics and turbulence.

Atomic and Molecular Physics at ICTP

In the early years after its formation, ICTP focused its activities on Particle Physics, Plasma Physics and Condensed Matter Physics. The Nobel Laureate, A. Kastler served as the Chairman of the ICTP Scientific Council during 1971-1982. Kastler, proposed to introduce "***Atomic, Molecular and Laser Physics***" in the curriculum of the ICTP. The first Winter College on the above disciplines took place in 1973 and was personally directed by him. The Colleges continued till 1985.

The 1980's witnessed rapid advances in optical physics and related technologies. This prompted the inclusion of Laser Physics in the Winter Colleges. This resulted in the inclusion of: applications of ultrashort laser pulses in ultrafast phenomena of atomic and molecular physics and laser diagnostics. By the end of 1980's ICTP acquired a few lasers and set up a laboratory. Laboratory sessions became a regular feature of the Colleges, leading to interactions between laser physicists and condensed matter physicists. And soon a group designated LAMP (Laser, Atomic and Molecular Physics) was born, which included, laser physics and technology; atomic and molecular spectroscopy and its applications; quantum optics and fiber optics.

- The activities of the LAMP group include
- Theoretical and Experimental Research
- Laboratory Training in Lasers and Optical Fibres
- Extended Courses, Colleges and Conferences
- Publication of LAMP Reports
- Training in Italian Laboratories
- Programmes in Developing Countries

The topics of LAMP being interdisciplinary are extensively covered in Winter Colleges in Optics held every year; and in the numerous meetings on: Nanoscale Physics; Computational Physics; Synchrotron Radiation; Condensed Matter Physics; Biophysics; Thin Films; Quantum Optics; and Laser Spectroscopy.

References:

1) André-Marie Hamende, The Birth of the Centre, News from ICTP, No. 107, pp. 6-7 (Winter 2003-2004).
2) Abdus Salam ICTP Website: http://www.ictp.it/
3) Sameen Ahmed Khan, Dr. Katepalli Raju Sreenivasan appointed Abdus Salam ICTP Director, Atlanta Samachar, pp. 16 (27 March - 02 April 2003); AAPPS Bulletin, 13 (2), 34 (April 2003); Thendral, 3 (5), pp. A24 (April 2003).

ORBITAL WELDING MACHINE

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The author of this article is working with Baroda Fluid System Component as a Manager– Tech Sales. (SSP of Swagelok). *I would like to thank the Swagelok welder team for their support.*

Swagelok manufactures and markets fluid systems components through a global distribution network, serving industries ranging from research, instrumentation and pharmaceutical/bioprocessing to power, oil and gas, petrochemical and semiconductor manufacturing. For more information please contact the author or log on to www.swagelok.com

INTRODUCTION

Welding existed since Bronze Age around 2000 to 3000 years ago. The crude method was forging or hammering. It improved over time with the discovery of Acetylene and use of carbon rods and a battery to create an electric arc. Orbital welding was first used in the 1960.

Arc welding is traditionally viewed as a means of making permanent connections. The various types include PAW, SAW, GTAW, GMAW, FCAW, SMAW, and CAW. The most common is the Gas Tungsten Arc Weld (GTAW) process which is used in high-purity applications such as aerospace, semiconductor and bioprocess. The marked improvement in weld quality control associated with arc welding gives this technology an edge over manual welding in applications requiring repeatable and high-quality.

GTAW PROCESS

Orbital welding is an automated GTAW process; the welded material remains stationary while the welding electrode is moved around the weld joint. The process is typically autogenous, which means that no filler is used. The autogenous welding limits the wall thickness to approximately 0.16 in. or 4 mm.

PRINCIPLE OF OPERATION

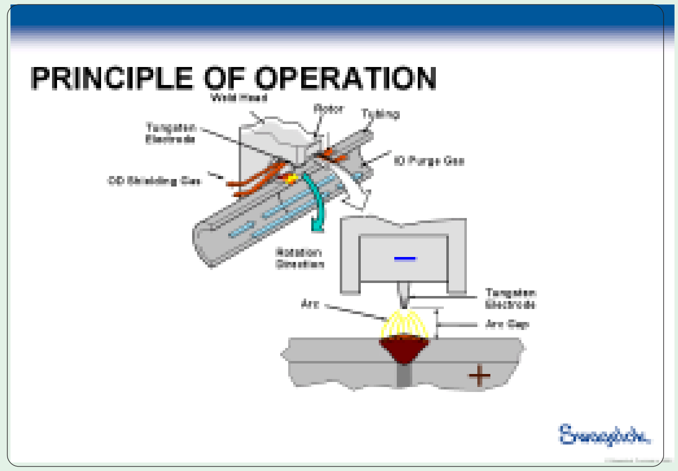
- The orbital welding process uses the GTAW, as the source of the electric arc that melts the base material and forms the weld.
- An electric arc is established between a Tungsten electrode and the part to be welded.
- To start the arc, an RF or high voltage signal ionizes the insulating properties of the shield gas.
- A capacitor dumps current into this electrical path, which reduces the arc voltage to a level where the power supply can then supply current for the arc.
- The power supply responds to the demand and provides weld current to keep the arc established.
- The metal to be welded is melted by the intense heat of the arc and fuses together.

GTAW COMPONENTS

The basic components required for the orbital welding are as briefed below

- **Power Supply** is the basic unit required for the orbital welding which employs a Microprocessor controller for its operation.

- **Weld Head** delivers consistent, precise welds for the tube OD. A DC motor in the weld head drives a rotor which carries the tungsten electrode around the weld joint.
- **Fixture Block** accurately aligns and holds the work piece to be welded.



ORBITAL WELDING PRECAUTIONS

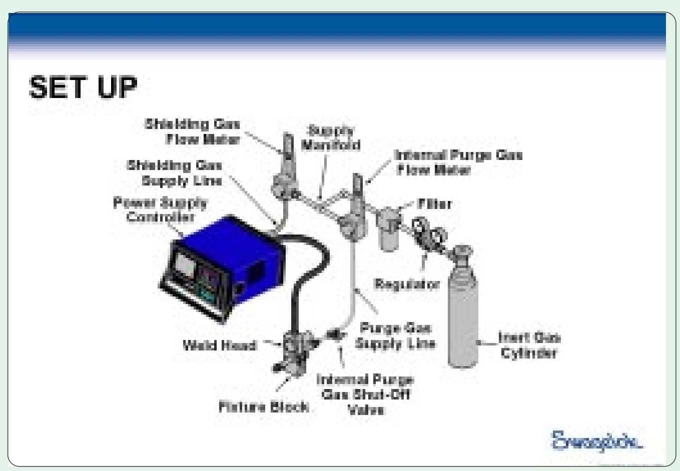
➢ **TUBING MATERIAL & HANDLING**

Selecting the appropriate material is a critical first step, as even the best orbital welding system cannot compensate for poor material used to manufacture tubing, fittings or other components. It is important that certain elements in the material, such as sulfur, be controlled. Attempting to weld tubes together that have a significant differential in sulfur content will likely produce a bead shift towards the tube having the lower sulfur content, potentially causing the weld bead to partially miss the joint. Variations in tube wall thickness, outside diameter and cleanliness will also affect the quality of the weld.

After selecting the proper material, it is essential to properly store and handle the tube. Do not store it outside, unprotected and uncovered where weather conditions can affect the cleanliness of the tube. The more dust, moisture and dirt inside the tube, the harder it will be to clean and the higher the likelihood of welding problems and contamination. It is essential to inspect all incoming tubing and is mandatory to have material certifications from suppliers.

➢ **TUBE PREPARATION**

Today's orbital welding systems feature tube facing tools that eliminate improper tube end preparation, which could lead to misalignment and contamination problems. Properly faced tubes should be perpendicular to the axis of the tube so they butt together with little or no gap between them. The faced tube end should also have no hang in burrs, and chamfers should be kept to minimum, typically less than 10 percent of the wall thickness, or 0.005 in., whichever is less. Excessive gap or chamfering will have a significant affect on the weld bead profile, which may cause the weld to be rejected. It is important to note that metal shavings and chips generated from cutting and facing the tube ends can go inside the tube, ultimately moving downstream when the system is pressurized and potentially lodging in another component, such as a regulator or valve.



- **FIXTURES & COLLECTS**

New orbital welding systems feature improvements in weld fixtures, such as collets and centering gages to further assist weld operators in making quality welds. By fixturing the tubes securely operators can ensure that the tube ends do not move at all during the welding process. Even the slightest movement could be the difference between a complete weld and an incomplete or misaligned weld that may be rejected and have to be cut our and re-welded.

Integral to standard fixtures are the collets, which hold the tube in place during welding. Since small diameter tubing typically has an outside diameter tolerance range of +/- 0.005 of an inch, collects need to be capable of securely holding tubing within this variation.

The proper positioning of the weld joint into the fixture presents another challenge. For common welds, the joint needs to be centered in the fixture so the electrode is precisely lined up with the weld joint. In some cases, centering is accomplished by visually positioning the joint, a less exact science.

When the weld joint has been positioned relative to the electrode in the weld head, it is time to set the gap between the electrode and the weld head, which involves positioning the electrode a predetermined distance away from the joint. This can be done in a number of ways, including visual adjustment or with pre – cut electrodes, calipers or a gage, which is probably the most reliable method. Microprocessor based machines calculate the arc gap values, and changing the value or setting it incorrectly can have significant effects on the weld.

- **PURGE GAS**

Individual welds can be rejected for a number of reasons but the success of the same depends upon the proper purging technique. Proper selection of purge gas, typically argon is the first step. Argon is available in varying level of purity and selecting the proper level for the desired result must be considered. Defining and setting the correct flow and pressure through the tubing and across the weld joint is probably one of the most likely areas of problems if not properly handled. The internal pressure keeps the weld puddle to flush outside the tube, while the proper flow will help keep the heat affected zone clean.

PROCESS ADVANTAGE

- Consistent , superior welds
- Excellent control of heat input
- Capable of welding most metals
- Use of filler material is optional
- High volume of autogenous weld at low cost

CONCLUSION

Orbital welding has been used by many industries to improve the quality and quantity of tube welding when compared to what can be accomplished by manual welders. The volume of welds that are produced by an automated welding system will far exceed that of a manual welder. The above mentioned precautions play a crucial role in orbital welding. Apart from these the other factors such as Arc current, Arc voltage, Travel speed also affect the weld quality. These are automatically governed and monitored by the microprocessor machines. The electrode should always be as per the machine manufacturer guidelines as this can greatly affect the arc which ultimately affects the weld quality. Features like ability to track and analyze specific data, three level password protections for security are making the use of orbital welding more popular.

Topical Conference on Atomic, Molecularand Optical Physics (TC-2005)

Theoretical Physics Department Indian Association for the Cultivation of Science Kolkata, December 13 - 15, 2005

TC-2005, sponsored by the Indian Association for the Cultivation of Science, Kolkata and supported by the Indian Society of Atomic & Molecular Physics (ISAMP) aims to explore the recent developments in AMO physics in the following areas:

- Collisions and Structures in Atomic and Molecular Physics.
- Atomic and Molecular properties under external environments.
- Quantum Entanglements and Quantum Computation.
- Bose - Einstein Condensation and Atom Optics

Abstracts must be sent through attachment on or before July - 31, 2005, to the following e-mail address :

tc2005@iacs.res.in

Conference details could be found at http://www.iacs.res.in/tc2005/index.html

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International Conference on Optoelectronic Materials and Thin Films for Advanced Technologies (OMTAT 2005)

Department of Physics, Cochin University of Science and Technology (CUSAT) Kerala, India

October 24-27, 2005

FIRST ANNOUNCEMENT

Department of Physics, Cochin University of Science and Technology is commemorating the World Year of Physics by organizing a four day International Conference on Optoelectronic Materials and Thin Films for Advanced Technology (OMTAT-2005). Original papers are solicited for OMTAT-2005 in the following areas but not limited to:

- Transparent Electronics
- Nanotechnology
- Solar Materials
- Luminescent materials and displays
- Magnetic materials
- Other related materials

Important dates

Abstract Submission : June 30, 2005

Acceptance : July 30, 2005

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For further details please visit: http://physics.cusat.ac.in/omtat2005

2nd International conference on "Current Developments in Atomic, Molecular & Optical Physics with Applications" (CDAMOP) March 21-23, 2006

Delhi University, Delhi – 110067, India

International Conference on "Current Developments In Atomic, Molecular & Optical Physics With Application" will be held from March 21- 23, 2006 in the Department of Physics, K.M.C., Delhi University, Delhi 110007,India. Main Topic to be Included but not limited to:

- Atoms & molecules in strong radiation fields
- Laser cooling ,trapping & bose einstein condensation
- laser technology and applications
- Nano-structures & photonics
- Quantum optics and quantum quantum computation
- Atomic structure & collision processes
- Applications of AMOP in green-chemistry, petroleum,
- Environmental sciences & information- technology

For further details and other information you are requested to write to the Convener of the conference.

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International Workshop on Photoionization (IWP2005)

Campinas, SP, Brazil, July 27-31, 2005

The aim of the 2005 workshop is to discuss ionization of various species by photon impact or weak/strong electromagnetic fields and the decay of photoexcited and photoionized species. Our target species are atoms (including Doppler free samples), molecules (randomly oriented or spatially oriented), ions, radicals, liquids, clusters and adsorbates.

The Topics will include (but are not limited to)

- Photoionization of atoms and molecules
- Spectroscopy of biological molecules in gas phase
- Resonant/Normal Auger spectroscopy
- Multicoincidence spectroscopy
- Partial Cross section measurements
- Atto and femtosecond spectroscopy
- New light sources including free electron lasers
- Doppler free spectroscopy (COLTRIMS and MOTRIMS)
- Circular/linear dichroism

The format of the technical sessions will follow the best of previous IWP's, offering both oral (invited or contributed) and poster presentations, over a 4 day program. The official language of the meeting will be English.

For details, look at conference website: http://www.lnls.br/iwp2005/

Deadlines (Unfortunately, all are over!)

Submission of Abstracts	March 03rd, 2005
Extended to	March 21st, 2005
Early Registration	March, 15th 2005
Extended to	April 18th, 2005
Hotel Registration	April, 04th 2005
Extended to	April 22nd, 2005