

To acknowledge and encourage progress and achievements in Insensitive Munitions technology and Munitions Safety, MSIAC has been presenting Awards for IM and MS excellence at NDIA IM/EM Technology Symposia since 1997



MSIAC MS Award for Technical Achievements

Individuals or teams who have made significant contributions in research and/or engineering related to the field of munitions safety

MSIAC MS Award for Career Achievements

Individual who have made consistent contributions in research, engineering, production, procurement, fielding, standardization, policy, etc. related to MS, over an extended period



MSIAC
Munitions Safety Information Analysis Center

**INSENSITIVE MUNITIONS AWARD FOR
TECHNICAL ACHIEVEMENT**



is granted to

Dr Philip Pagoria

*For significant contributions in Research and/or Engineering related to
Munitions Safety.*

San Diego, CA, USA
October 2013

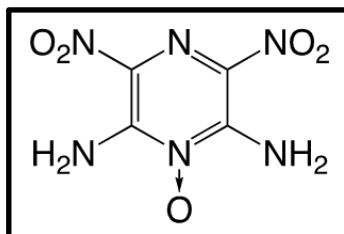
Roger SWANSON
Project Manager
MSIAC

Wade EVANS
Chairman
MSIAC Steering Committee



Recipient: **Dr Philip Pagoria**, LLNL, US, for synthesis of LLM-105, a highly insensitive explosive:

- A highly respected and well known researcher in the IM and energetic materials community.
- Synthesis of new promising insensitive energetic materials is infrequent and is generally considered as a breakthrough
- LLM-105 is a highly insensitive material that maintains performance (better than TATB).
- There is significant interest in this explosive as evidenced by the number of papers subsequently produced by other researchers.
- In addition to discovering LLM-105, Dr Pagoria has worked to transition the technology to the next level; further developed the synthesis, scale up and production of the material.





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2 MSIAC MS AWARDS FOR CAREER ACHIEVEMENTS WILL BE PRESENTED THIS YEAR



**INSENSITIVE MUNITIONS AWARD FOR
CAREER ACHIEVEMENT**



This certificate is awarded to

Dr Pai-Lien Lu

*For career dedication and his outstanding contribution to the cause of Munitions Safety,
for the benefit of the International Munitions Community.*

San Diego, CA, USA
October 2013

Roger SWANSON
Project Manager
MSIAC

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Recipient **Dr Pai Lu**, US Army:

- Dr Lu is eminently qualified for this award; is a recognised national expert on IM and MS
- Has made significant technical contributions over the last 45 years
- The nomination references some 60 papers or publications.
- His work is wide ranging in the fields of propellants, explosives, less vulnerable munitions design, vulnerability / IM testing.
- Dr Lu has contributed to NIMIC IM testing workshop in 1998 and other international meetings and symposia.
- He is recognised for his technical expertise and as an advocate for IM

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**INSENSITIVE MUNITIONS AWARD FOR
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This certificate is awarded to

Ken Graham

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San Diego, CA, USA
October 2013



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Project Manager
MSIAC



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Recipient **Mr Ken Graham, US:**

- Mr. Ken Graham is also eminently qualified for this award.
- He has contributed to the IM and MS community for over 40 years.
- Mr. Graham won the NIMIC individual IM award in 1997 for his substantial technical contributions.
- This award recognises his continued achievements beyond the 1997 award and his MS contributions (as yet unrecognised).
- We list some 60 publications produced **after** his 1997 award, which predominantly focus on IM and MS.
- He has contributed to MSIAC and NIMIC activities.
- Mr. Graham is well known to the international community for his enthusiastic promotion of IM and MS.

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MSIAC and the Steering Committee would like to thank all those that took the effort to recognize the hard work and commitment of others by submitting nominations, and in particular all those who were the subject of a nomination.