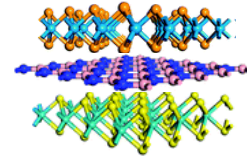


# 2D Materials beyond graphene: Government Workshop of the Washington, DC Metro Area

## Chairs:

Dr. Berry Jonker, NRL berry.jonker@nrl.navy.mil  
Dr. Madan Dubey, ARL madan.dubey.civ@mail.mil  
Dr. Albert Davydov, NIST albert.davydov@nist.gov  
Dr. Ken Goretta, AFOSR kenneth.goretta@us.af.mil



**Date:** Monday, 23 July 2018, 0900-1700

**Location:** Naval Research Lab, B226 Friedman Room, 4555 Overlook Ave SW, Washington DC

**You are cordially invited to attend the first biannual Government Workshop of the Washington, DC metropolitan area.** These workshops are intended to provide a forum for research scientists and program managers at government labs and agencies within the broad Washington, DC metropolitan area. Our goal is to communicate research results, discuss and coordinate research efforts, and establish collaborative efforts to best utilize talent and facilities within the area. This biannual workshop will rotate between the three local labs or some other common location.

**This first workshop will focus on the synthesis and science of 2D materials beyond graphene,** specifically including monolayer transition metal dichalcogenides such as MoS<sub>2</sub>, group IV and V monolayers such as silicene, and other van der Waals bonded compounds.

**Program:** under development -- a preliminary program is attached.

**We welcome additional speakers and posters.** *If you would like to present a talk or poster, please contact Berry Jonker (berry.jonker@nrl.navy.mil) or any of the workshop chairs.*

## Lab Overview Talks 0900 – 1050

Welcoming remarks  
Overview 1: Berry Jonker – NRL  
Overview 2: Madan Dubey – ARL  
Overview 3: Albert Davydov – NIST  
Overview 4: Nick Glavin – AFRL

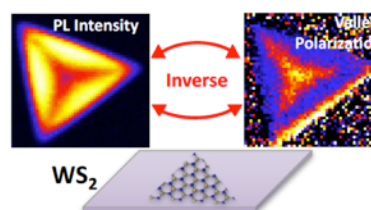
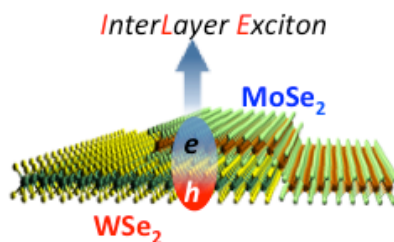
## Research Highlight Talks (15 minute talks) & Poster Session 1100-1630

### Panel Discussion 1630-1700 (workshop chairs)

Identify challenges and opportunities potentially included in government report.

Lunch and coffee breaks will be served in the meeting room at a cost of approximately \$20 per person.

**\*\* Please RSVP by July 16 to berry.jonker@nrl.navy.mil to facilitate planning for lunches.**



<b>Monday 23 July</b>		<b>Washington DC government workshop on 2D Materials beyond graphene</b>	
<b>Friedman Room, B226 Naval Research Laboratory, Washington DC</b>			
0800 - 0900	Arrival and Registration	coffee available	
<b>AM1: Overviews</b>		<b>Speaker</b>	<b>Title</b>
0900-0910	Dr. Bruce Danly, NRL DOR or Capt. Scott Moran	Welcoming remarks	
0910-0935	Berry Jonker, NRL	NRL research on 2D materials	<a href="mailto:jonker@nrl.navy.mil">jonker@nrl.navy.mil</a>
0935-1000	Madan Dubey, ARL	ARL research on 2D materials	madan.dubey.civ@mail.mil
1000-1025	Albert Davydov, NIST	NIST research on 2D materials	albert.davydov@nist.gov
1025-1050	Nick Glavin, AFRL	AFRL research on 2D materials	nicholas.glavin.1@us.af.mil
<b>1050-1110</b>	<b>coffee break</b>		
<b>AM2 Synthesis</b>			
1110-1125	James Maslar, NIST	Optimizing TMD Vapor Deposition Processes Using In Situ Diagnostics	
1125-1140	Mike Snure, AFRL	Wafer scale growth of hBN and heterostructures by MOCVD	michael.snure.1@us.af.mil
1140-1155	Robert Burke, ARL	Growth, synthesis and characterization of MoS2/ GaN device structures	
1155-1210	Aubrey Hanbicki, NRL	Interlayer excitons in MoSe2/WSe2 van der Waals heterostructure	<a href="mailto:aubrey.hanbicki@nrl.navy.mil">aubrey.hanbicki@nrl.navy.mil</a>
<b>1210-1300</b>	<b>LUNCH in room</b>	trays of wraps, chips, salads, cookies, etc	
<b>PM1 Optical Properties and Defects</b>			
1300-1315	Matt Rosenberger, NRL	Electrical characterization of discrete defects with conductive AFM in WS2	
1315-1330	Nikolai Zhitenev, NIST	STM characterization of 2D material-based devices	
1330-1345	Angela Hight-Walker, NIST	Advanced Raman characterization of 2D materials	angela.hightwalker@nist.gov
1345-1400	Kathy McCreary, NRL	Understanding lateral variations in photoluminescence in TMD monolayers	
1400-1415	TBD		
1415-1430	TBD		
1430-1445	Steve Hellberg, NRL	Theory of optical transitions in van der Waals heterostructures	
<b>1445-1530</b>	<b>COFFEE / POSTERS</b>		
<b>PM2 Transport / Applications</b>			
1530-1545	Alex Mazzoni, ARL	Design, process, fabrication and testing of MoS2 devices	
1545-1600	Curt Richter, NIST	Electrical transport measurements of 2D materials	
1600-1615	Adam Friedman, NRL	Chemical vapor sensing with TMDs	

1615-1645	<b>Panel Discussion</b>		
1645-1700	Berry Jonker, NRL	Concluding remarks, plans for next mtg	
	<b>POSTERS</b>	<b>ALL ORAL SPEAKERS ARE ALSO ENCOURAGED TO BRING A POSTER</b>	
	Matt Chin, ARL	THz Detection based on Graphene Plasmonics	
	Peter Wilson, ARL	Effect of Plasma-based Doping of 2D van der Waals Materials for contacts	
	Ben Chuang, NRL	Interlayer excitons in MoSe2/WSe2 van der Waals Heterostructures	
	Kathy McCreary, NRL	Variations in photoluminescence from TMD monolayers	
	Matt Rosenberger, NRL	Conductive atomic force microscopy of defects in TMD monolayers	
	Ben Chuang and Matt Rosenberger, NRL	Advanced fabrication of van der Waals heterostructures	
	Berry Jonker, NRL	Hybrid 2D ferroelectric heterostructures	
	Sergiy Krylyuk	2D Materials Foundry: Library of Metal Chalcogenide Single Crystals with Tailored Structural, Electrical and Optical properties	green card
	Amber McCreary	2D Raman	
	Son Le	Two posters	H1 visa <del>F1 visa</del>
	Sugata	poster	EAD
	Bob Keller	poster	
ORNL	Andrew Lupini	2 posters	green card (UK)

Michael Heiber, MML