

To : The Principal
Vice Principal
Science HOD
The Secondary School

15th Jan 2009

Dear Sir / Madam,

Re: The 12th NYP Astronomy Competition 2009

Enchanté! The *Astronomie et Physique Appliquée* of the French-Singapore Institute (FSI), Nanyang Polytechnic, invites your school to participate in the 12th **Annual NYP Astronomy Competition 2009** for secondary schools in Singapore.

The event will take place on:

Date : 13th March 2008, Friday
Time: 12.30p.m. – 8.00 p.m.
Venue: Theatre for the Arts (*Please see the map attached*)
Special Lecture: A/Prof. Chung Keng Yeow (Physics Department, NUS)

In celebration of the International Year of Astronomy year 2009, we are conducting 10 parallel astronomy and astrophysics **talks in 5 Lecture Theatres in our campus on 6th March 2009 (Friday)**. These lectures are conducted by experts or PhD research scholars from the National University of Singapore. This year's astronomy competition syllabi will be based on these Lectures. As in the past, we have many secondary schools participating in this prestigious competition, so we hope that you register your interest soon for the talks (6th March) and the competition (13th March). Details regarding the talks and competition are also enclosed for your perusal.

I look forward to receiving your school's response before **23rd February (Monday) 2009**. Please do not hesitate to call us at **6550-0522** should you have any queries.

Yours sincerely



Mr. Yeh Ong Chua
Astronomy Competition Chairman

About the Astronomy Talks ...

The Astronomy Talks will be held on 6th March 2009, from 6.30pm to 9.30pm at 5 Lecture Theatres (LTs) in BLK N namely LTN-2 to LTN-6, School of Engineering, Nanyang Polytechnic. The details of each talk are listed below. As these talks are held concurrently at 5 different LTs at the same time, schools are advised to select only 2 students per LTs. The total number of students per school is 10 plus 1 teacher. Students coming for the talks must arrive at the respective LT before 5.45pm for lecture registration.

Programme of Astronomy Talks (6.30pm – 9.30pm)

<u>Talk</u>	<u>Invited Speaker</u>	<u>Venue</u>	<u>Time</u>
1) Black Holes	Mr. Ong Yen Chin	LTN-2	6.30 – 7.30pm
2) Astrophotography	Mr. Leek Meng Lee	LTN-2	8.30 – 9.30pm
3) Elements of Astronomy 1	Mr. Lai Wei Chang	LTN-3	6.30 -7.30pm
4) Elements of Astronomy 2	Mr. Sarabjit Singh	LTN-3	8.30 – 9.30pm
5) Particle Physics and Neutrinos	Mr. Law Zhi Yang	LTN-4	6.30 – 7.30pm
6) Space Materials	Mr. Wong Loke Yuen	LTN-4	8.30 – 9.30pm
7) Cosmology	Dr. Cindy Ng	LTN-5	6.30 – 7.30pm
8) Cosmic Strings	Dr. Jesse Goldman	LTN-5	8.30 – 9.30pm
9) Quantum Physics & Cosmology	Dr P. Rajesh	LTN-6	6.30 – 7.30pm
10) Astrophysics	Dr. P. Chan	LTN-6	8.30 – 9.30pm

The NYP organisers reserve the right to change the programme without notice.

Astronomy Talks Registration Slip

Astronomy Talks

From : Dr / Mr / Miss/ Mrs _____
Designation : _____ **Email:** _____
Tel / Hand Phone: _____ **Fax:** _____
School: _____ **Signature:** _____

This is to confirm that _____ students from my school will be participating in the **Astronomy Talks, 6th March 2009 (Friday)**.

Students' Names for Astronomy Talks (6.00 pm)

School is expected to select 2 students per LT for the talks. Total number of students are capped at 10 per school. These 10 students will be the same students who will take part in the competition on the 13th March 2009. Schools that wishes to sent more than 10 students or send 2 teams will have to write in to seek special permission.

	Level	LTN-#
1) _____	_____	_____
2) _____	_____	_____
3) _____	_____	_____
4) _____	_____	_____
5) _____	_____	_____
6) _____	_____	_____
7) _____	_____	_____
8) _____	_____	_____
9) _____	_____	_____
10) _____	_____	_____

School buses or private cars should park at Car Park 23 (CP23).

Please fax this **registration slip by the 23rd February 2009 (Monday)** to Mr. Yeh Ong Chua, School of Engineering, Nanyang Polytechnic, Telephone: 65500522, Fax: 64520400. You may also email this **registration slip** at YEH_Ong_Chua@nyp.gov.sg. More program details will be sent to you upon our receiving of this Registration Slip. **Please email to us immediately if you do not hear from us one week after your registration at YEH_Ong_Chua@nyp.gov.sg**

Astronomy Competition Registration Slip

12th NYP Astronomy Competition 2009

From : Dr / Mr / Miss/ Mrs _____
Designation : _____ **Email:** _____
Tel / Hand Phone: _____ **Fax:** _____
School: _____ **Signature:** _____

This is to confirm that _____ students from my school will be participating in the **Astronomy Competition, 13th March 2009 (Friday)**.

A) Students' Names for Advanced Astronomy Competition (12.30 pm)

Students are expected to have done some Calculus. i. e. know how to find maximum & minimum values, derivatives (and chain rules) of exponential (e^x) and polynomial functions, curve plotting and sketching.

	Sex	Level
1) _____	_____	_____
2) _____	_____	_____

B) Students' Names for Team Astronomy Competition (1.30 pm)

3) _____	_____	_____
4) _____	_____	_____
5) _____	_____	_____
6) _____	_____	_____
7) _____	_____	_____
8) _____	_____	_____
9) _____	_____	_____
10) _____	_____	_____

School buses or private cars should park at Car Park 5 (CP5).

Please fax this **CONFIRMED** registration slip by the **23rd February 2009 (Monday)** to Mr. Yeh Ong Chua, School of Engineering, Nanyang Polytechnic, Telephone: 65500522, Fax: 64520400. You may also email this **registration slip** at YEH_Ong_Chua@nyp.gov.sg. More program details will be sent to you upon our receiving of this Registration Slip. **Please email to us immediately if you do not hear from us one week after your registration at YEH_Ong_Chua@nyp.gov.sg**

About the 12th NYP Astronomy Competition ...

Please read carefully

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1. The Competition 2009 this year **consists of 2 parts**. Please bring 2 **pencils** or pens, **ruler**, eraser and a **scientific calculator** for each participant.

Part A) 12.30 pm

The 2 selected students from each school for the **Advanced Astronomy Competition** must arrive at the **NYP Theatre for the Arts (TFA) before 12.30 pm for Registration**. Please choose 2 of your best students. These 2 students will do a small written (physics and mathematical) project for two hours.

Part B) 1.30 pm

Participating Secondary Schools' Students for the **Team Astronomy Competition** must arrive at the **NYP Theatre for the Arts (TFA) before 1.30 pm for Registration**. **You are strongly encouraged to arrive 45 minutes earlier** due to the large number of participating schools. We hope that schools will register as a team together. It will be an one-hour multiple choice Astronomy Quiz. **A maximum of 8 Students** (Minimum of 4 students) from each school can participate in the Team Competition. The Best 4 students' scores will be compiled for each team. The top 6 teams of the multiple choice Astronomy Quiz will be competing in the final round of Oral Astronomy Quiz.

It is important that the times stated above must be strictly adhered to.

Some Extra Information and Reiteration

2. The quizzes above are prepared for students who are in Secondary 3, 4 or 5, reading "O" levels Physics and Mathematics. Students are expected to possess some simple knowledge of general Astronomy and Algebra. Please bring a **scientific calculator**.
3. A maximum of **2 Teachers** (or **Representatives**) are required to attend the Prize Presentation Ceremony.

The prizes include **the Champion** for the **12th NYP Astronomy Competition 2009**, **2 Runners-Up Team prizes**, **3 merit Team prizes**, **2 Top Individual Scorer prizes** and **2 Most Improved Team prize** (compared to last year).

4. **The Topics** for the Team Astronomy Competition (1 hr Multiple Choice Test) are as follows:

- Simple Astronomy Topics: Constellations and the Zodiac. Asterisms.
- The Solar System: The Sun and Planets. Life cycles of stars. Neutron Stars.
- Deep Sky Objects: Nebulae, Star Clusters, Galaxies, Black holes. Quasars.
- Secondary School Mathematics related to Physics and Astronomy, e.g. Simple Trigonometry (Logarithms, Parallax and Parsec).
- Simple Einstein Special Relativity includes time dilation, length contraction, , velocity addition and simple conceptual ideas on General Relativity (no calculations).

5. **There will be 4 Special prizes** for the 2 enterprising advanced students from each school who wish to attempt the **Advanced Astronomy (A Written Project)**.

Topics include:

- Simple calculations on Bode's law, Kepler's 3 laws, Newton's law of gravitation, Wien's law and Stefan-Boltzman Law. Elementary algebraic skills and Simple Additional "O" Mathematics Logarithms (for Absolute and Apparent star magnitudes). The Bohr Atom and simple Particle Physics ideas on the Quark Theory.

Students in this category are tested through a project work. The 2 students from each school are encouraged to discuss and come up with a solution within 2.0 hrs (1.00pm to 3.00pm). Please register at 12.30 pm at Theatre for the Arts.

6. **Encouragement for the Clueless:**

All of the topics given above can be found easily in standard elementary star books such as "Astronomy for Dummies", "Astronomy for Idiots" and "O" / "A" level Physics texts. They are fun for reading and learning.

Strongly recommended books are:

- 1) Astronomy Today by Chaisson and McMillan (Prentice Hall, Pearson)
- 2) Conceptual Physics by Paul Hewitt, 8th, or 9th or 10 edition (Addison Wesley, Pearson)

The NYP organisers reserve the right to change the rules without notice. Please note that the decisions of the Judges and Referee are final.

