THE SALESIAN

Issue No. 10 December 2015

Cover story:

SPACE

The sky is the limit. But how big is our sky? This issue of the Salesian brings you through a space journey to know more about the space (or spaces?) we exist in.

Black Hole - Matthew Ho

You must have heard of black holes, but don't let the name fool you! A black hole is anything but an empty space. It is a great amount of matter packed into a tiny area - think of a star ten times more massive than the Sun squeezed into a sphere approximately the diameter of New York City. The result is a gravitational field so strong that nothing, not even light, can escape. There are in fact small but massive black holes in the Milky Way and the stellar black hole is one such kind. When a star burns through the last of its fuel, it collapses. For smaller stars, up to about three times the Sun's mass, the new core becomes a neutron star or a white dwarf. On the other hand, when a larger star collapses, it continues to fall in on itself to create a stellar black hole.

Black holes formed by the collapse of individual stars are relatively small, but incredibly dense. Such an object packs three times or more the mass of the sun into a city-size holes which consume the dust and gas from the galaxy around them, growing in size.

Space Debris - Evan Lam

Space is infinite. It has not yet – and may never be – fully comprehended by human beings. Nevertheless, the endless rubbish we produce and send into space as human beings is too much and could be disastrous.

At any given time, we can contact our friends through our mobile network. Satellites work day and night to allow us to do that. GPS, television, and many other modern necessities revolve around the use of satellites. Human curiosity also drives us to put more and more missions in space – to the moon, or further – in search of information and discovery. It is an entirely natural part of being human, to want to discover and use those discoveries to better our lives.

But that leads to one serious problem – space debris. When a machine loses power, it stops operating. Imagine if a satellite lost power: it would be out of control and could float off course. No one could locate it or retrieve it. It may then collide with other satellites. Or, if space debris passes through the atmosphere and lands on dry land or crashes into buildings, property or even lives may be lost.

The most worrying situation is called "Kessler Syndrome." If a lost satellite crashes into another satellite, both will break apart. Each will send out hundreds of pieces of debris. Since objects travel so fast in orbit, even small pieces of debris are deadly. The sky is so full of satellites and abandoned rocket parts that those pieces of debris will each hit another satellite or rocket section, creating a hundred pieces of debris, and each of those causing a hundred more. Soon, space would be impassable, and all those amenities we rely on would be lost!

Multiverse - David Chui

Of the many, many ways human beings have come to think about their reality, the idea of a "multiverse," is among the most famous. A "multiverse" is basically an infinite number of universes, each having either similar or vastly different scenarios occurring at the same time, depending on the theory. One theoretical physicist made a hypothesis: many universes may be present outside our own universe. Since then, other scientists have put forward the idea that there are many kinds of multiverses.

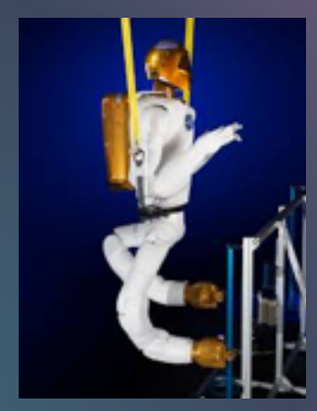
So far, the generally recognized types are: infinite universes, bubble universes, parallel universes, daughter universes, and mathematical universes. Today's technology cannot verify if any of these hypotheses are actually true – or even verifiable whatsoever with any amount of technology. In the future, however, we may go far enough, and we may look deep enough to encounter what other universes have to offer.

Infinite universes are similar to the idea of a repeating decimal. Such a universe recurs since they are infinite in scale – if we travel far enough, we will encounter another Earth identical to this one.

A parallel universe speaks for itself. However, it is not always parallel. Sometimes they are thought to crash into each other. This could, some say, result in another Big Bang, just as in the creation of our universe.

Bubble universes come from the idea suggested by some scientists that the Big Bang first created planets and that universes came only afterwards. When the Earth was created, it started small and slowly transformed into something like a big balloon. Bubble universes are like inflated balloons, so they are also called "an inflation universe."

The Robonauts - Alson Kwok



Robots are common in movies. From Robocop to Terminator, it seems we can imagine them only as heartless killers. They are machines, and machines receive instructions and complete them without hesitation, even if ordered to murder. But real life isn't always like the movies – the robot here is entirely different. It does not kill or harm, it helps.

That robot is NASA's new Robonaut 5 (R5), the latest model in the International Space Station's robotic crewmember, Robonaut's, family. Recognizing a national need for robotic disaster response, NASA introduced this latest model as an upgrade to the R2.

The difference between R2 and R5 is that R5 is a true bipedal robot, with two arms and two fully integrated legs which allow it to move freely. Because of that, the R5 can work more effectively in environments engineered for humans and are easier to deploy and maintain.

It is said that you cannot clap with one hand. Just as one hand needs the other, the astronauts and crew members at NASA need their robotic crewmate. Such robots are increasingly necessary to complete space missions. Indeed, these Robonauts aren't cold-blooded killers, but heroes helping us to take one giant leap for mankind.

A Song of Space - Ares Chan

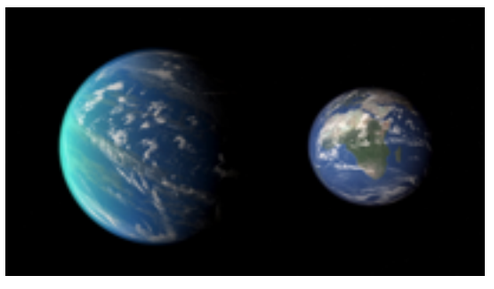
Youtube video!

Have you ever thought about what it would be like to be a lost astronaut – trapped in your spaceship, far from home, communication cut? Have you ever thought about loneliness and isolation, how they would intensify without any solution? The situation itself is hypothetical, but it's fun to think about. An astronaut is at the mercy of space more than we can imagine.

There is a song that tells such a story – a broken spaceship losing contact with Ground Control, crewed by men who would never be able to return to Earth. What happens after that? Listen to the song, think, and see if you can come to your own conclusions.

That song is Space Oddity, written by David Bowie and released as a music single in July 1969, just nine days before Apollo 11 landed on the Moon. In the song's opening, we are introduced to the despairing Major Tom, looking upon Earth, far off as it was, and knowing no one on the planet could hear him. "Planet Earth is blue and there's nothing I can do," the song goes – he knows there's no way for him to change his situation. "Can you hear me Major Tom?" is the song's famous refrain, said after the mission operators on the ground lose communication with him. The song begins to close with "The stars look very different today," which Major Tom says as he contemplates the ever-changing nature of his fate.

The Second Earth - Edgar Yu



Have you found your Mr. or Mrs. Right yet? After all these years, it seems Earth has. NASA has recently announced the discovery of a planet extraordinarily similar to our own. This is exciting news because it means there may be living creatures – maybe even intelligent beings like us – on another planet.

This "Second Earth" has been named Kepler-186f. It is larger than Earth by about 60%, about 1,500 years older, and, according to NASA, is located within its star's habitable zone – the region where life-sustaining liquid water is possible on a planet's surface. This makes it more likely that the planet possesses the surface temperature, atmosphere, and water necessary for life – more likely than any other planet we've found yet.

Unfortunately, it is too far away for us to reach right now – more than 1,400 light-years away. Perhaps one day it will be possible, but, for now, any possible life on that planet will have to remain a mystery to us.

Campus corner

The first term has just ended. It's time for us to learn about the new, review the old, and see what we can do to make the rest of the year more meaningful!

Interviewing Uncle Bo - Ronald Lam

We took the opportunity to interview one of the Salesian family's most popular members – Uncle Bo. In this interview, Uncle Bo talks about his childhood dream and his feeling toward the school.

R as Roland; B as Uncle Bo

R: Hello, Uncle Bo! You've been working here for a long time, but how long exactly has it been?

B: I have been working here for almost nine years.

R: How did you get your start here?

B: Nine years ago, I had just finished my holiday abroad. I had returned to Hong Kong to renew my personal documents – my ID card, passport, and so on. Meanwhile, I happened to meet a Father I knew from my time in Canada. His mother lives in Canada, too. He told me that there was a vacancy in the Salesian English School, and wondered if I was interested. The Salesians helped me when I needed help. I always wanted to pay that back, and this was a golden opportunity.

R: What are your feelings about the Salesian English School?

B: It's like a big family. When I was young, I was a street kid. I had a lot of brothers and sisters, and our mother and father were working too much to look after us. They never earned enough to pay for everyone's tuition, so I didn't have enough money to attend school. But thanks to a father from the Salesian English School, I was allowed to study in the primary section for two years without paying tuition. So, I decided to come back as a gesture of appreciation. I hope I can help Salesian boys as much as I can.

R: What's the most memorable thing in your mind about this school?

B: Students graduate every year. They come and go, that's as natural as a fish needing water. But it's also always hard to accept, since we've become friends. I've seen them pass by every morning and afternoon. There's a lot of mixed feelings to deal with. Sometimes, some of them quit school when they were young, but they still come back to see me. They talk about their mistakes when they were kids. Their experiences are unforgettable.

R: What was your dream when you were a child?

B: When I was young, I always wondered how an aeroplane – this huge thing, made of metal – could fly. My dream was to get into the Far East Flying and Technical School to be a pilot, but the tuition fees then were HK$200 and that was far too expensive for me. I never realized my dream.

R: What do you expect from Salesian boys?

B: I don't expect every one of them to be outstanding professionals. I just want them to be good citizens and make contributions to the society when they are needed. This is important because it is what Salesian boys are supposed to do to maintain our school's reputation.

R: Thank you for your time. I wish you a happy life, Uncle Bo.

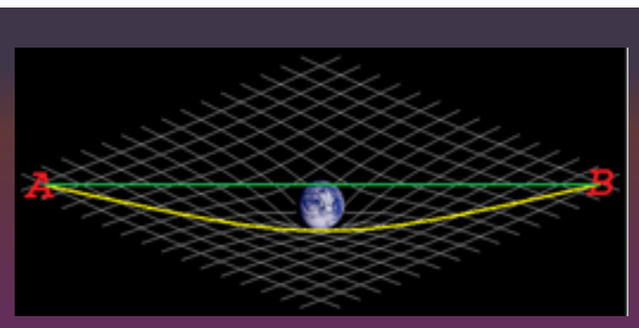
Talents Wanted

We want YOU!

Ready for a big challenge? Find Mr. Kwan, Ms. Wong or Mr. Maxwell at Room 509. Talents never go unnoticed!

Teachers-in-charge: Mr. Fergal Kwan, Mr. Robert Maxwell, Ms. Ann Wong

Senior editor:	Brian Yung	4A
Editors:	Alson Kwok	6C
	Peter Wong	6C
	Ares Chan	4D
	Evan Lam	4D
	Ronald Lam	4E
	Willy Lee	4E
	Edgar Yu	4E
	Matthew Ho	3B
	David Chui	2B



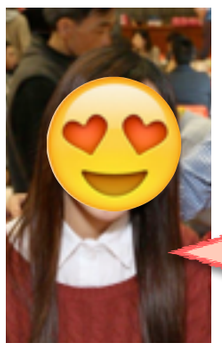
A Fact of Basic Relativity - Willy Lee

In explaining the mysteries of space, the theory of relativity has proven to be one of our most useful tools. It explains how time is affected by gravity and velocity, and introduced idea of relative time that has become a staple of sci-fi and fiction, all aside from its practical applications.

This picture shows a green ray and a yellow ray. The green ray indicates a beam of light unaffected by anything, whereas the yellow ray represents a beam of light affected by the Earth's gravity. The force of attraction that holds us to the ground pulls on light as well, causing the ray to bend. The shortest distance between two points is a straight line, so a curved line with the same end-points will be longer than a straight one. Because the light is now travelling a longer distance, the theory of relativity states, time is likewise lengthened. This is why time is slower when we get close to a massive planet or a black hole.

A clear illustration of this principle was shown in the recent film *Interstellar*. A major plot point dealt with high-gravity environments altering time relatively – what might be one hour for one person could be thirty years for another in a different place. Even if we can't express the meaning of the theory of relativity in scientific terms, its implications have become well known and understood by society at large.

Introducing the New Teachers - Evan Lam, Edgar Yu, Willy Lee

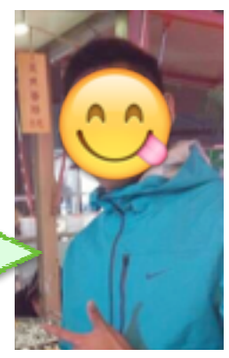


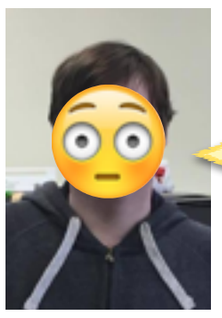
She has a degree in Religious Studies from the Hong Kong Baptist University. When she was a sophomore, she won the English Speaking Contest's Merit Prize. In Secondary School, she was once the recipient of the Best Improved Student Award.

She has countless hobbies, including playing piano and guitar, reading books, and swimming. She appreciates her colleagues and students for their helpfulness. She said that it helped her get used to the school much more easily. **Who is she?**

Given his strength and height, it is not surprising he is a member of the Hong Kong Rugby and Dodgeball Team. When he first came to our school, he was amazed by the harmonic environment when he saw that boys of different forms could enjoy the same activities.

He hopes that students in the Salesian English School can be more self-disciplined and hardworking in not only their hobbies, but also in exams and training. He also hopes they can have their own goals and fight for them as hard as they can until they realize their dreams. **Who is he?**





He has a degree in International Affairs. When he was a junior, he studied in Shanghai. His main hobbies are reading books, swimming at the beach, and his favorite subjects are history and language.

He believes that diligent study and determination can overcome any difficulty in class. He also believes that the Salesian boys are very outgoing and friendly, but could be more self-disciplined when it comes to their study in class. **Who is he?**

He is a class teacher. He majored in Mathematics at HKUST. He believes attitude and value are the most important elements that define a person.

He thinks that Salesian boys in general are pretty active. He hopes that Salesian boys should always study hard to achieve their goals, and he looks forward to his students' good behavior. **Who is he?**

Suggestions for the School - Peter Wong

Peter: Summer has come and gone. But don't you remember what it was like coming to school during that time – coming early, unable to enter your locked classroom, forced to stand in suffocating corridors, sweating to death until the janitors unlock the door? I suggest that classrooms be opened early in the morning and at lunch. More and more students fall increasingly ill during the morning assembly due to heat. There is no place for them to go to cool themselves down before school starts, and that is the reason so many students have heatstroke in the morning. Therefore, if classrooms can be opened early in the morning, students will have more time to rest before their lessons. This will help them concentrate in class as well.

Jimmy: On rainy days, the floors and stairs are usually slippery, and teachers and students may easily fall on those slick tiles. Last year, anti-skid tape was applied to all stairs. Now, however, those strips are shredded. This increases the risk, once again, of teachers and students slipping. The observatory has issued the Yellow Rainstorm Signal early in the month. Therefore, I suggest that all the anti-skid tapes should be replaced as soon as possible.

Simon: Table football is my life, and I can't live without it! I am thankful that our school provides an area in which we can enjoy this great activity. However, as time goes by, those tables have begun to get damaged and rusty, and that causes a lot of problems when students want to use them. I advise the school to purchase some new football tables for the students.