Face Mask which Arrest and Kill COVID 19
攔截及殺滅新冠病毒的口罩

Curie Limited - Hong Kong
居安有限公司 - 香港

Curie Highlight
技術重點

- We secured a patent on "Air filtration system and manufacturing method having antiviral and antibacterial effectiveness by strong polycationic mechanism and composite" in the US and HK, patent covers 153 countries.
  我們取得“利用強正極機制及配方使用於具有抗病毒及抗細菌的空氣過濾系統”的美國與香港專利，覆蓋 153 個國家。
- We are the first one in the world who successfully commercialized this composite with an extremely competitive production cost, and we are applying this mechanism on mask production.
  我們是全球第一個將此機制及配方，以極具競爭力的成本，商用化及量產化，並應用於口罩製造上。
- Our composite achieved an ultra-high Viral Filtration Efficiency (VFE / > 99.9a%) and Bacterial Filtration Efficiency (BFE / > 99.9a%) according to ASTM F2101 and EN14683 testing method.
  我們的配方能達致超高效病毒過濾效率 (VFE / > 99.9a%)、細菌過濾效率 (BFE / > 99.9a%).
- Our composite achieved an ultra-high killing rate on COVID-19 (99.81%), H3N2 (99.99%) and Staphylococcus Aureus (99.99%).
  我們的配方能達致超高效殺滅新冠病毒率 (COVID-19 99.81%)、殺滅流感病毒率 (H3N2 99.99%) 及殺滅金黃葡萄球菌率 (99.99%)。
- Our composite achieved an ultra-killing time on microorganism (< 60 seconds).
  我們的配方能於 60 秒內殺死微生物。
- Our composite achieved an ultra-high Bacterial Filtration Efficiency (BFE / >99.9a%) after conditioning composite according to ASTM F1980-16 Ageing Process to simulate 5 years storage, which overachieve the requirements of western governments as strategic inventory on masks. Such requirements are the benchmark of western governments, they are all anticipating a material that can stay in high filtration efficiency on biohazards after lengthy storage.
  我們的配方能於模擬 5 年老化效果後，維持細菌過濾效率 (BFE / > 99.9a%)，符合西方國家戰略儲存物資標準。我們的配方能於長久存放後維持高效生物危害過濾率。
- Our composite achieved a high Bacterial Filtration Efficiency (BFE / >95%) on a reusable mask, after washing 80 times with cold water and washing powders. It is the first mask in the world that stays in EN14683 medical grade after 80 times of washing.
  我們的配方能應用於可重用水洗口罩上，能於手洗後 80 次達到細菌過濾效率 (BFE / > 95%)，符合歐盟 EN14683 醫用標準。
- Our composite achieved an ultra-high killing rate on COVID-19 (99.28%) after washing 60 times with cold water and washing powders in washing machine.
  我們的配方於可重用水洗口罩上，能於 60 次機洗後維持超高效殺新冠病毒率 (COVID-19 99.28%)。
- Our composite does not involve with any toxicity and heavy metals. Our major ingredient is

a food additive approved by World Health Organization (WHO).
我們的配方不涉及任何毒性或重金屬物質，主要化學結構為世界衛生組織(WHO) 核准的食物添加劑。

- Our composite complies with safety standards for textile standard for infants.
  我們的配方符合嬰兒對紡織品的安全要求。
- Our composite achieved "Arrest" and "Kill" simultaneously with competitive production cost and durable performance in a safe chemical composite.
  我們的配方能以極具競爭性的成本、長效高效性能及生物安全性，同時達到"攔截"及"殺滅"新冠病毒效果。
- We design and manufacture KV99 masks, which can achieve an almost perfect balance on production cost, filtration efficiencies on particulate / bacteria / virus, air permeability, anti-viral, anti-bacterial and durability than existing mask design.
  我們設計並生產"KV99"口罩，於生產成本、粉塵/細菌/病毒過濾效率、透氣度、殺毒效率、殺菌效率及存放時效上達至近乎完美的平衡，比傳統熔噴布口罩優勝。
- Intertek granted Intertek Tick Mark on KV99 masks to endorse the quality, safety, performance, and functions of KV99 masks.
  英國 Intertek 天祥集團為居安頒發殺毒口罩 Tick-Mark 認證，肯定"KV99"口罩的品質、安全、性能及功能。
- Our composite works more effectively on the latest mutated COVID-19, which has much more protein spikes, which means it is almost 10 times more negative in electric charge.
  最新的新冠病毒變種有比第一代多 10 倍的刺突蛋白，而刺突蛋白是負極性。強正極比偏負極的熔噴布在新冠病毒變種上更具優勢。
- We launch the production of our composite in Hong Kong, and daily production capacity is 20 tons, which is scalable compared to meltblown production, which can only produce 1 ton per day for a 3 millions machine.
  我們已在香港正式投產，每日產能能達 20 噸，相比起熔噴布生產更具成本效益。

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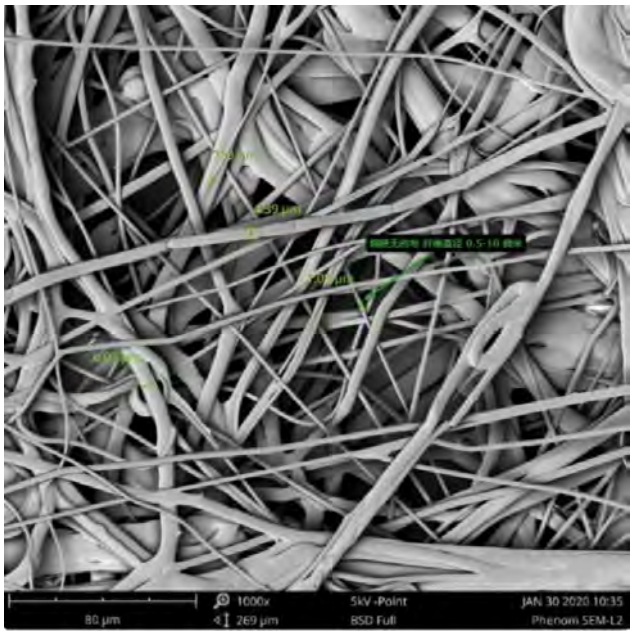
Curie Inception
居安起始

Mainstream material for air filtration is meltblown. Meltblown rely on physical electrostatic force to arrest COVID-19, but not relying on the fabric density. When particles are passing through meltblown fabric, they shall be induced by electrostatic force, and then attached to fabric surface.

傳統空氣過濾材料為熔噴布，熔噴布依賴物理靜電攔截新冠病毒，而不是依靠纖維密度。當粉塵通過熔噴布時，粉塵會被靜電感應，並依附於纖維表面上。

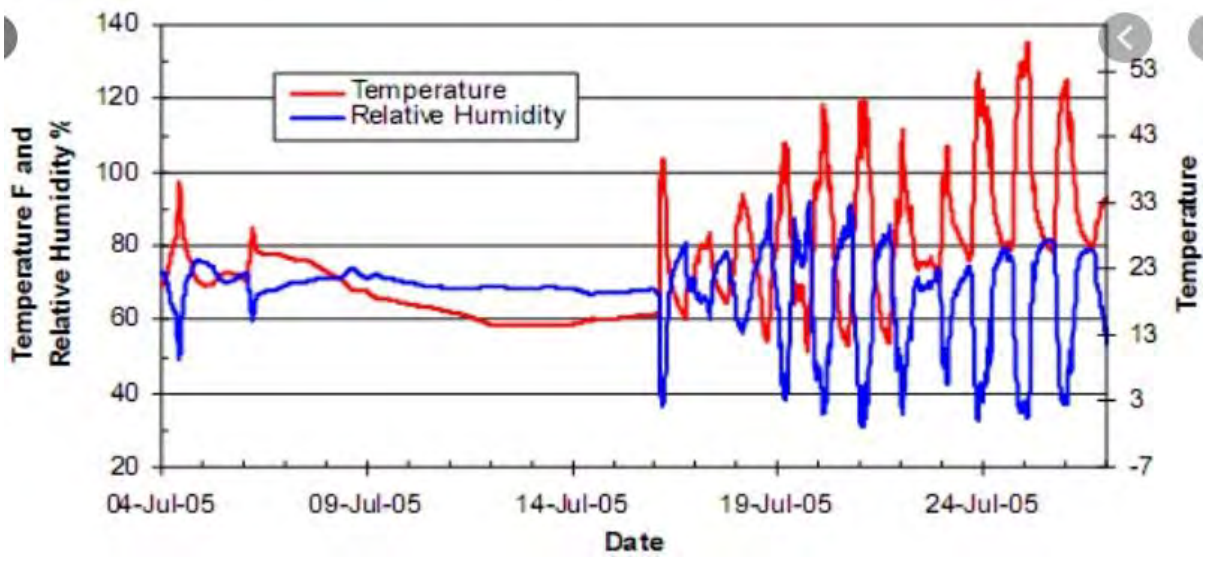
Electrostatic force is suffered from a fundamental shortcoming, it will be discharged by hot weather and high humidity, as a result, filtration efficiency will drop significantly.

物理靜電有一個根本性問題，他們會因為高溫及潮濕而放電，而導致過濾效率流失。



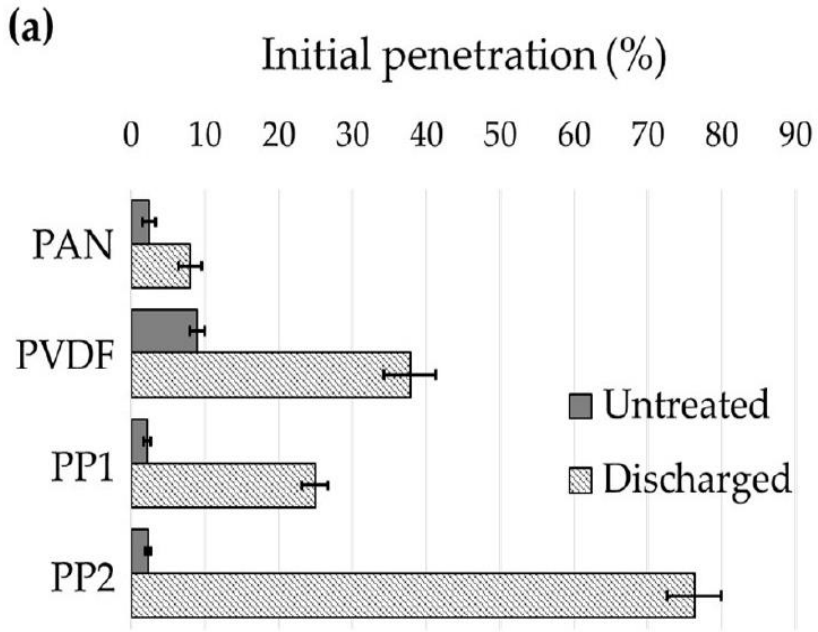
When masks are put into a freight container and shipped via ocean, extreme conditions during transit have severe impacts on the mask efficiency to protect against bacteria and viruses. The temperatures inside the container are cycled anywhere from 58°C to 16°C every day. Humidity levels on the ocean can reach detrimentally high levels. Such environments provide a perfect condition to discharge electrostatic force on masks and their meltblown. Seoul National University conducted an experiment in March 2020, that demonstrated that after the electrostatic force is discharged, the meltblown in masks cannot protect you much from dust, bacteria, and viruses.

當我們將成品口罩放入貨櫃，再透過海運出口時。每天貨櫃內的溫差能達 58°C 至 16°C，再加上海洋上濕潤空氣，造成近符完美的靜電放電環境，將熔噴布上的靜電放電，對過濾效率造成嚴重影響。韓國首爾大學於 2020 年 3 月模擬熔噴布因運輸過程導致靜電放電後的過濾效率測試，發現熔噴布會損失很大的保護效率。



This graph above shows an example of what conditions the masks will face inside the container. The humidity and temperature levels will directly affect the mask integrity of the protection efficiency. Every container takes about 1 month for traveling. By the time the mask reaches the consumer, the electrostatic force has been heavily discharged.

以上圖表是口罩在貨櫃內所面對的溫差與濕度的變化。溫差和濕度會對熔噴布過濾效率造成嚴重影響。當口罩經歷近一個月的運輸倉存過程後，過濾效率會大為衰減。

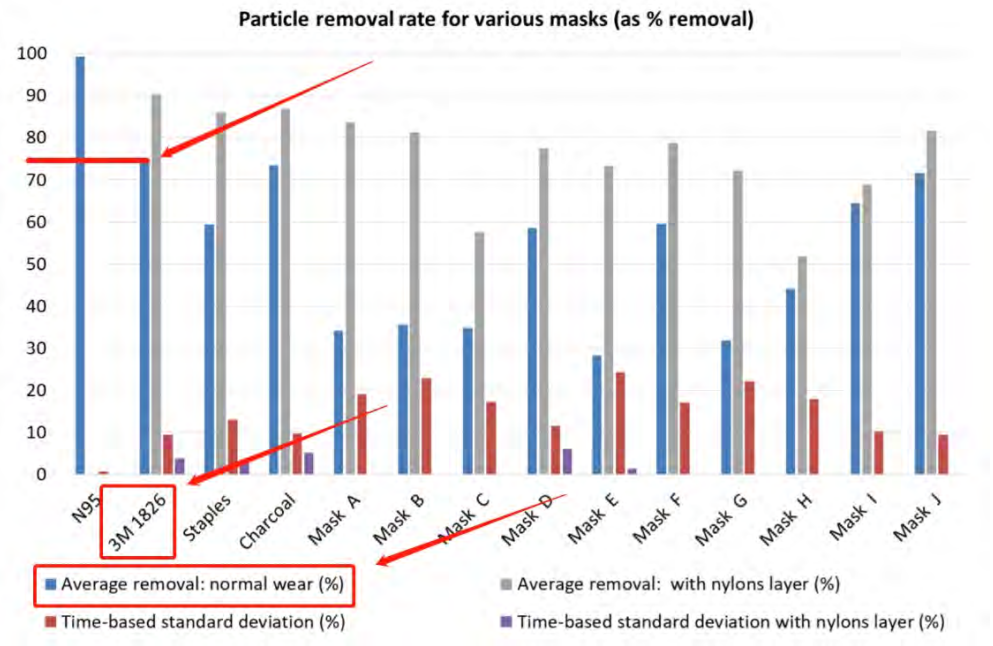


PP1 is a polypropylene homopolymer, which is purified and more expensive material for meltblown. PP2 is a propylene-ethylene copolymer, which is impurified and cheaper material for meltblown. Both are the major ingredients for meltblown. In the graph above, you can see how the electrostatic force is radically discharged. The World Health Organization (WHO) conducted a

study and found that major material of meltblown for 3M masks only achieved 75% protection efficiency. As 3M mask uses PP1, the case study matches with the graph data as shown.
PP1 是聚丙烯均聚物，是品質較為穩定的熔噴布原材料。PP2 為丙烯-乙烯共聚物，是次一等的熔噴布原材料。以上圖表為韓國首爾大學對比熔噴布於靜電放走前後，過濾效果的變化。世界衛生組織亦測試了 3M 口罩的平均過濾率，發現只有 75%。

Northeastern University, Boston discovered, even top-grade mask like 3M, their filtration efficiency is just around 75%.

美國波士頓東北大學，亦測試了 3M 口罩，發現過濾率只有 75%。



The University of Hong Kong discovered, meltblown mask will only reduce infection rate of COVID-19 between hamsters to 66.6% / 83.3%, but not claimed 99%.

香港大學研究發現，熔噴布口罩對新冠病毒只有 66.6% / 83.3% 過濾效率，並非現時口罩包裝上聲稱的 99%。

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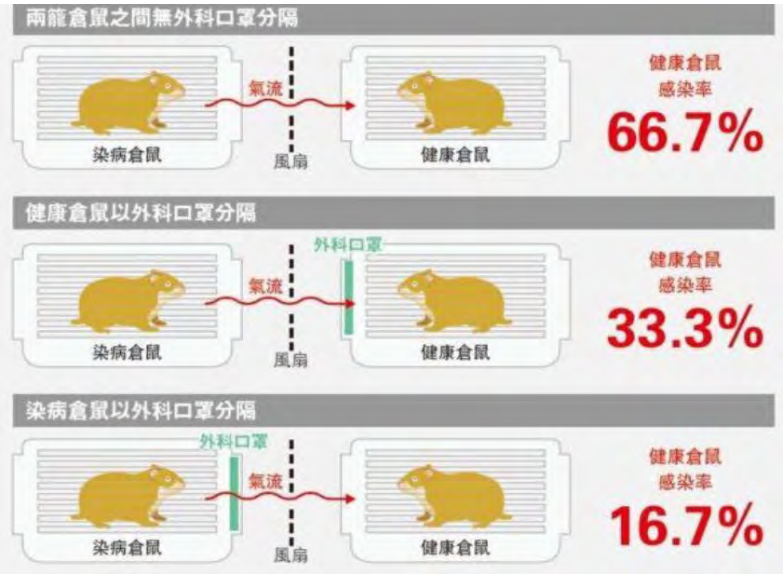

Without Mask Protection:
66.7% Hamsters Infected

Mask on Health Hamster:
33.3% Hamster Infected

Mask on Infected Hamster:
16.7% Hamster Infected

Now Belgium got almost 1/3 of healthcare workers infected, and United States got over 570,000 healthcare workers infected. Those healthcare workers wear the best PPE in the world, above findings are the possible contributor on high infection rate among healthcare workers in western countries.

現時比利時有將近 3 份 1 的醫護人員受新冠病毒感染，美國有超過 57 萬醫護人員受感染，他們均配戴最好的防護裝備。經以上研究所發現的靜電散失問題，是極有可能導致西方醫護人員高致病率的原因。

Loophole of Current Testing Method
現時檢測標準的漏洞

Testing method of ASTM and EN mainly focus on Particulate Filtration Efficiency (PFE), Physical properties of particulate vary to COVID-19. Particulate is neutral charged, they can be induced and arrested under electrostatic force. While COVID-19 is strong negative charged, negative charged electrostatic force will repel instead of arresting COVID-19.

現時美國 ASTM 和歐盟 EN 標準均將重點放於顆粒過濾效率 (PFE)，用於測試的顆粒為中極性，靜電感應能很有效攔截中極性顆粒，但新冠病毒為負極性，負極性的靜電會排斥新冠病毒，並非攔截新冠病毒。

Repealing is dangerous in air filtration theory, as it may bounce between fabric base, and induce unpredictable physical motion.

排斥於空氣過濾中是危險的，因為他們會於纖維基底間彈跳，導致新冠病毒不可預期的物理運動。

Current testing methods do not take account to the effect of head motion during wearing, and electrostatic discharge during transportation and storage.

現時的檢測方法更沒有將頭部於使用口罩時的搖晃及因運輸過程所造成的靜電流失，納入計算之內。

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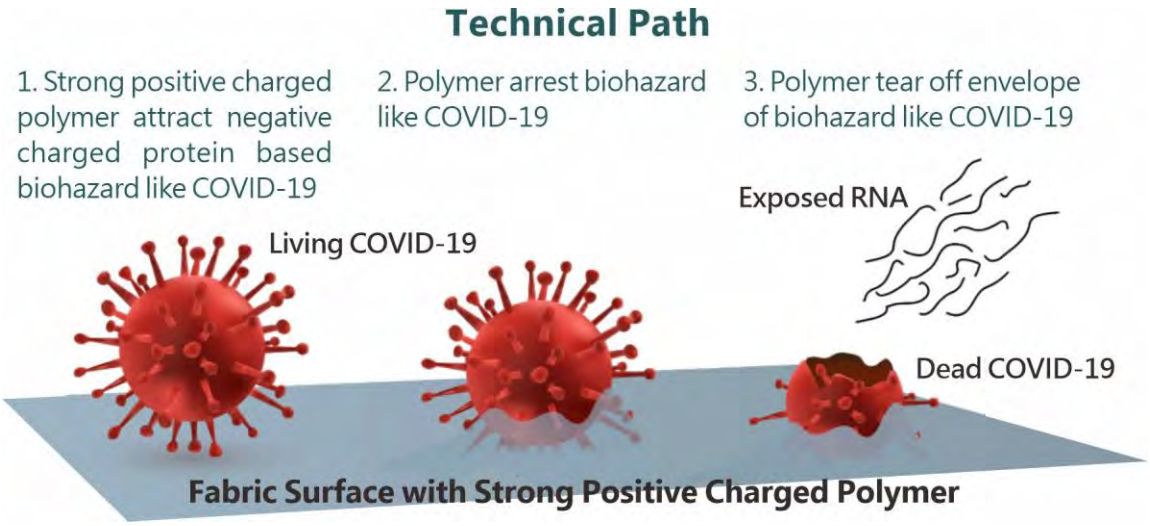
We need a more accurate testing method to accurately simulate the infection of COVID-19, and we design the true protection gear according to this new standard.

我們需要一個更加準確模擬新冠病毒傳播方式的檢測方法，並以此去設計真正能保護人類的個人防護用品。

A New Approach
新方法



1. 纖維基底表面的強正極聚合物會吸附帶負極的蛋白質細菌病毒，例如新冠病毒
2. 強正極會攔截細菌病毒
3. 強正極會撕破細菌病毒表面的包膜，從而殺死細菌病毒

To protect the US and Europe, a new approach different from electrostatic force was needed. This new approach needed to be cost efficient and have scalable rapid production. It has to be stable - able to survive extreme conditions without sacrificing its protective efficacy and remain safe for continual human consumption.

為有效保護西方國家，我們必須要尋找一種新方法，不再依賴靜電去攔截新冠病毒，而這種方法必須能有成本優勢及大規模量產。過濾效率必須穩定，並且能抵禦極端環境變化。

In 2013, the New York State Department of Health discovered spike proteins over coronavirus resulting in a strong negative charge. With the strands of COVID-19 in September 2020 already different from COVID-19 on December 2019, the virus now contains 10 times more negatively charged spike protein, and which in fact makes the virus stronger and more difficult to stop. If COVID-19 acted like SARS in 2003, the virus outbreak should have been stopped in June 2020.

於 2013 年，紐約州衛生部發現冠狀病毒表面的刺突蛋白為強負極性。現時第七代新冠病毒的變種已與第一代有所不同，第七代擁有比第一代多 10 倍的刺突蛋白，換言之第七代比第一代具有更強的負極性。

假若新冠病毒的物理特性是與 2003 年非典型肺炎相類似，新冠病毒早就能像非典型肺炎一樣透過口罩滅絕。

So, what is different about COVID-19? As negatively charged, COVID-19 is inarguably much stronger than SARS. With a stronger negative charge, the greater affinity to ACE-2 receptor infection rate is much higher than other coronaviruses, similar to SARS. So how do we kill it? The best way to arrest and kill, would be a strong positive charge. The solution would be to maintain a stable positive charge that can withstand all types of deteriorating conditions brought on with time and transport. The only way to maintain a stable positive charge is by a chemical nano structure and not an unstable electrostatic charge. Our positive charge chemical nano structure can only be destroyed at temperature in excess of 300°C, or exposure to strong acid. We have stress tested our product and put our fabric into 120°C ovens for 48 hours. The result is that our filtration efficiency remains the same at 99.99%. Our BFE and VFE will stay the same even during extreme atmospheric conditions in transport from China to the US or Europe.

因為新冠病毒對比起非典型肺炎有更強的負極性，對於人類 ACE-2 受體有更大的親和力，所以對比於一般冠狀病毒有更強的傳播力。我們透過將纖維改性，我們於纖維間構建具有強正極的納米化學結構，而該化學結構只在 300 度以上或面對強酸時所溶解，使之能於極端的運輸環境下還能維持強正極性，再用該強正極性去攔截並殺滅越來越變得負極的新冠病毒。我們曾於 120 度環境下存放 48 小時，發現細菌過濾效率能維持 99.99%。

This is just the first issue of electrostatic discharge during transport solved by our team. The second issue happens as you wear a mask. Virus and bacteria will begin to grow after 4 hours of usage.

當我們解決了靜電流失問題，下一個需要解決的是口罩二次感染問題。細菌和病毒能於在使用口罩 4 小時內滋生至危險程度。

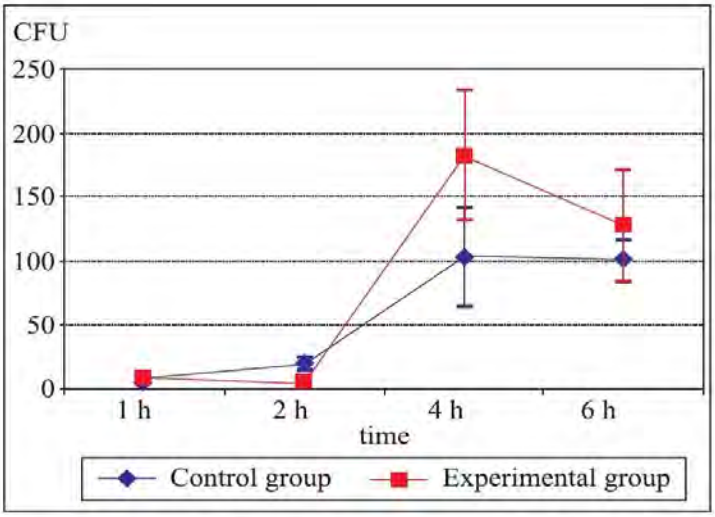


Figure 1. Counts of CFU on operation tables, after 1h,2h, 4h and 6 h of expositon.

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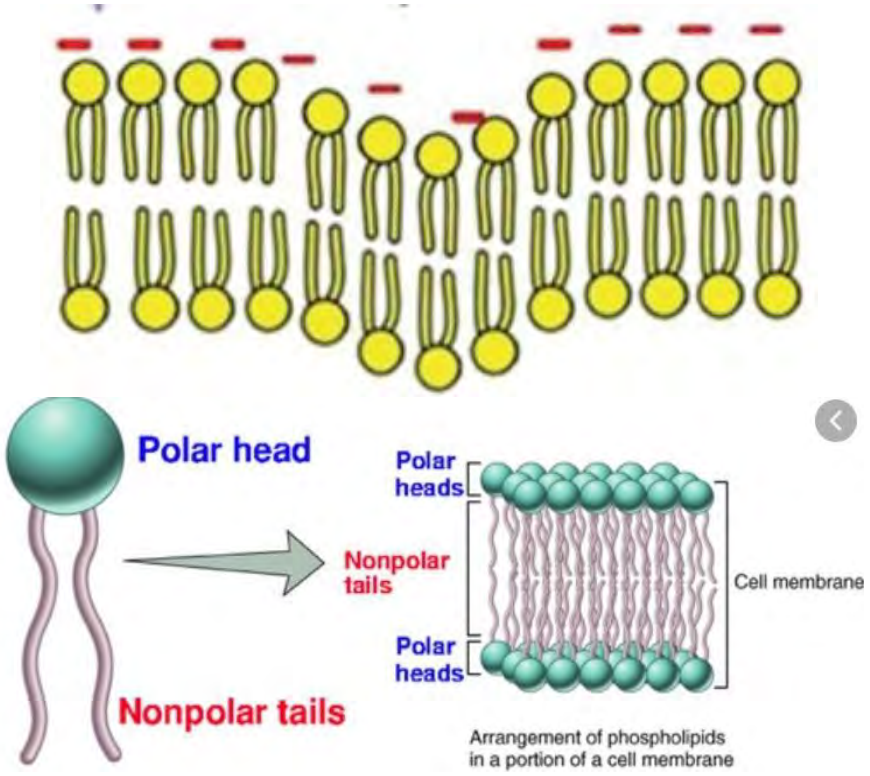
The growth rate of bacteria and virus can reach up to 180 times or more. As regular movement of the head occurs, the virus will airborne itself again. And in reality, as people temporarily take off and set down their mask to surfaces (e.g. to eat or drink), probably transference of COVID-19 is high. This is the reason why COVID-19 needs to be killed on mask.

於配戴 4 小時後，細菌能滋長 180 倍。而使用時頭部的搖晃，會使被攔截下來的細菌和病毒重新散發於空氣中。一般人在使用口罩時會經常不經意接觸到口罩表面，這就是為什麼口罩需要有殺毒的功能。



Examined under an electron microscope, you will find that the envelope of COVID-19 is a very fragile protein chain, with a negatively charged polar head. Once they experience a positive charge, it will pull that polar head, and the chain will break. The envelope of the virus will tear off a hole and they will die.

新冠病毒的包膜是十分薄弱的磷脂雙分子層，而他們有磷酸酯頭部帶有負極性，當他們感應到強正極，負極性的磷酸酯頭部便會因正負相吸而產生位移，從而撕破包膜，殺死新冠病毒。

Therefore, a positive charge provides a double benefit here:
所以，強正極面對新冠病毒有雙重好處：

1. Arresting 攔截
2. Killing 殺滅

The mutation trend of COVID-19 is having more spike proteins and grows stronger on negative charges. Electrostatic forces work less efficiently under this mutation trend. And our positive charge will work more effectively.

新冠病毒的變種方向是趨向於更多的刺突蛋白，其負極性越來越強。偏負極的熔噴布靜電在這變種方向下會變得越來越低效，而強正極則會變得越來越高效。

Being able to create a stable product means being able to supply the world with a product that can effectively assist in keeping viruses and outbreaks at arrest. However, the realization that the product needs to be able to accomplish this safely is of our top concern. While some of our competition have also brought forth their own products in answer to the COVID-19 pandemic, our Curie product is the only one of its kind to claim health safety for human use. Our main ingredient is a WHO approved food additive. And unlike some of our competitors, we do not use metals in our formulation. We do not use Zinc, Silver, Titanium, or other toxic metals when breathed in could pose long term health risks.

第三個問題是安全性，現時市場上有不少的殺毒口罩，居安是眾多的殺毒口罩中，最無毒無害。居安本身的化學結構主要成份為世界衛生組織 (WHO) 核准的食物添加劑。市面上的光觸媒、暗觸媒、銀離子、鋅離子、鈦離子則為重金屬納米微粒，對人類有神經毒性及生殖毒性。

While some other competitors have contrived products that are safe, we have a product that is not only safe but also stable, cost effective, and scalable. Because we know that far beyond this COVID-19 pandemic, we have emanated a technical path for our product that is continually evolving into more products to fight the world of future bacteria and viruses.

在安全性、成本、產量平衡上，我們的技術路線是比新冠病毒的變種走得更遠，在面對未來不知名的細菌和病毒，我們的技術路線將會是比其它競爭對手更為有效去防護人類。

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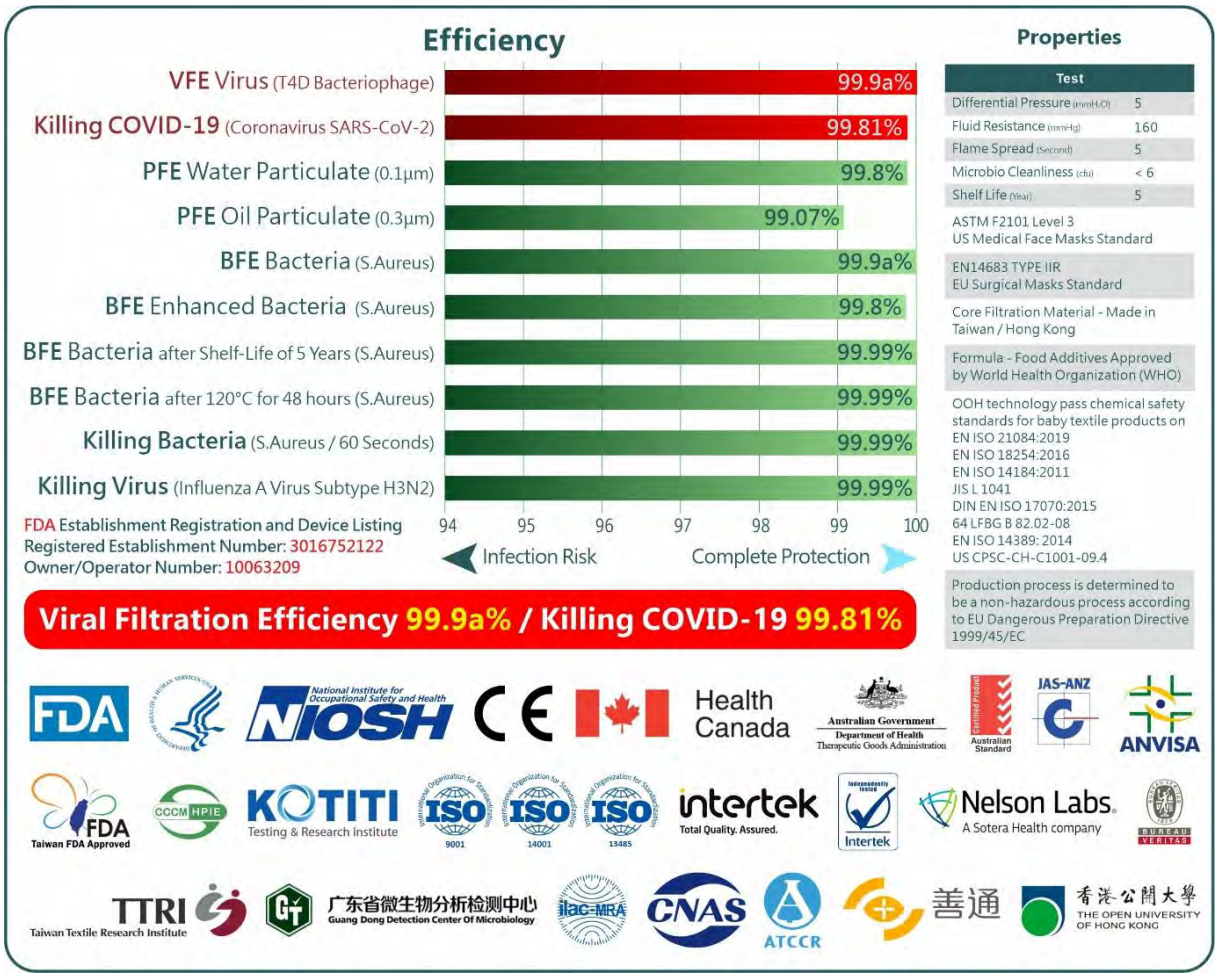
Curie



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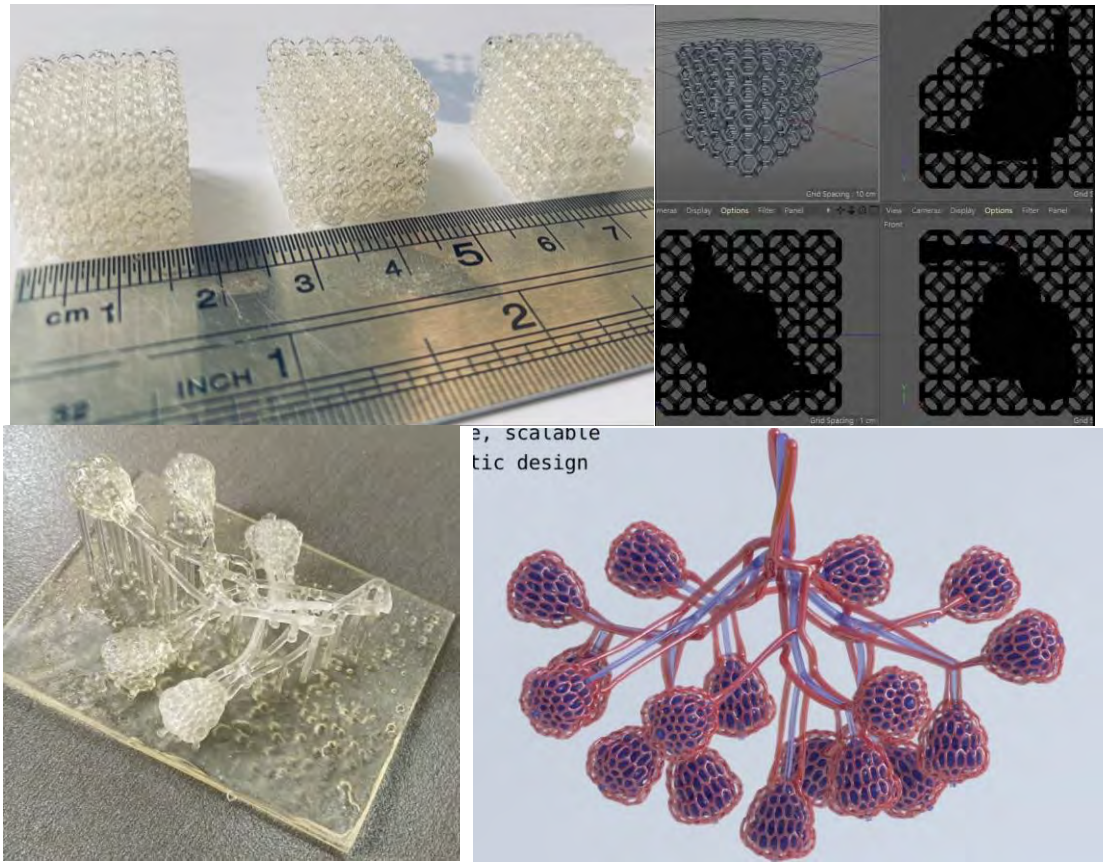
Curie Story
居安故事

Aldrin OR, graduated from Industrial Engineering of Hong Kong University of Science and Technology, and Rayman Gong, Postdoctoral Fellow of The Hong Kong Polytechnic University, were engaging on 3D printing of Micro Scaffolding of Human Tissue Reengineering by Continuous Liquid Interface Production (CLIP).

柯俊賢於香港科技大學畢業，專業於工業工程，龔劍亮為香港理工大學的博士後研究員。他們於疫情前研究利用連續液面生產 (CLIP) 立體列印用於人類組織工程的微型結構。



Aldrin and Rayman invented a composite to enhance the affinity between scaffolding and human cells, therefore human cells can grow along the designated shape as a functional human tissue.

柯俊賢及龔劍亮發明了能高效提高微型結構與人類細胞蛋白質親和力的配方，並使人類細胞能咬合著微型結構沿著結構生長成有功能的人體組織。

When COVID-19 hit the world, the progress of this project is paused. Aldrin and Rayman thought the physical properties of protein based human cells, are similar with spike protein over COVID-19, therefore they tried to combine this composite with different fabric base with different manufacturing method, and it is the beginning of Curie.

當新冠病毒橫掃全球時，微型結構專案暫停，柯俊賢及龔劍亮想到新冠病毒的刺突蛋白物理特性，與人類細胞蛋白質相類近，所以便嘗試用相同配方應用在不同的纖維基底上，並設計出量產方法，這就是居安的起始。

Frequently Asked Questions
常問問題

1. *Is there a protection level of the inlays, or other comparison which can be used, i.e. equal to N-95?*

For protection efficiency, I would like to raise one very important thing here. Full name of N95 is particulate respistrator, it never mentioned they have ultrahigh efficiency on virus filtration. Testing method of N95 is blowing through NaCl on mask, and measuring how many NaCl penetrate the mask. NaCl is a completely different thing comparing with COVID-19. NaCl is neutral charge, it won't move at all. COVID-19 is in high negative charge, it will move, molecular motion of COVID-19 is very different from NaCl. If we want to arrest NaCl effectively, we will need electrostatic force to induce neutral charge particle and arrest them. If we want to arrest a strong negative charge, we need strong positive charge to arrest them. It is impossible to have 1 technical path to arrest everything effectively. If we need to do one job very good, we need to tailor make a technical path according to the physical properties of your target. We choose COVID-19 in this case.

In the University of Hong Kong, they conducted an experiment. In an enclosed area, they put a lot of boxes with a hole, and they use a very top quality Medicom mask to cover this hole. Inside the box, they put Syrian hamster inside it. They found even we put on a high-quality mask, infection rate of COVID-19 will only drop to 1/3, it never reach so-called 1% or 5%. In Belgium, healthcare workers wear N95, but 1/3 of healthcare workers are infected with COVID-19 there. This week, we are going to have discussion with Intertek and 3 professors on different professions, we all think current standard on mask got a loophole, we will come up with a better method to simulate transmission of COVID-19. If current standards work well, you will not see so many healthcare workers are infected.

We tested virus filtration efficiency (VFE) in Nelson Lab and Intertek, our filtration efficiency on virus is > 99.9%. We are confident that it is cheaper and better than N95, as we chose a better technical path than N95.

2. *50% more breathability compared to conventional masks of the same type, Is there a reference to this claim?*

If you need something got VFE 99.9a% and BFE 99.99%, and filtration efficiency will not drop in 5 years. Currently only Nanofiber can achieve it. Nanofiber rely on fabric density to arrest COVID-19, so it will be very stable, but the static pressure drop will become 2 to 3 times more than our filter

material. If you have a chance to wear a mask with Nanofiber, you will experience hard to breathe. There is no mask made of Nanofiber successfully passing ASTM F2100 or EN14683, they fail it because of static pressure drop.

3. WHO approval or reference on non-toxicity

It is related to our formula. Now our patent is in 18 months confidential period, so you will not search anything related to our formula or production method in any public database yet.

But we are very willing to share it directly with key technical team of UN, we got some very strong literature support on hand, once they see it, they will know why we are so confident on technical path. We don't want to make profit based on a killing matter. We hope to save as much as people life in a very affordable cost for poor people in Africa and India and South America. We sincerely hope we can launch this technical path through the channel from United Nations.

4. Do you have air permeability specifications?

According to ASTM F2100 and EN14683, our delta P is between 20~30 Pa/cm2

5. Besides pointing out the competitors "meltblown fabric" deficiencies, we will be asked on describing the technical detail on your product which make it possible to have the advantage over it.

Meltblown:

- Electrostatic force will be discharged during long haul transportation, so you will see there are very high infection rate among healthcare workers in US / Europe, while infection rate of healthcare workers are very low in Far East

- Electrostatic force is negative charge, COVID-19 become very strong negative charge after mutation. We are now relying on an unstable negative charge to arrest a target with strong negative charge. Therefore we got a fail results from many clinical test, when we use actual COVID-19 to test the effectivness on controlling transmission of COVID-19.

Curie filter:

- Mutation trend of COVID-19 is becoming stronger in negative charge, then we use positive charge

- Electrostatic force is unstable, then we build a stable nano chemical structure that can maintain strong positive charge even after we condition our filter under 120C for 48 hours

6. The material presents and positions itself as a new polymer nonwoven fabric, allegedly with 153 patents from different countries. Okay, maybe. But where it was before the discovery of COVID-19? We are now looking at patents, looking at technologies from the same direction, and we are not invisible either to this company or this "super material". All Hong Kong companies can be checked in China, but we do not see any operating with such a trademark CURIE. The file you provided does not have any reference links published in scientific journals or research centers regarding the effectiveness and general existence of this material.

Our first experiment started at 2020/2/28.
Originally we are not working in the "COVID-19" direction, we are building nano scaffolding for human tissue reengineering via Continuous Liquid Interface Production (CLIP). We made a solvent that got super high affinity with protein, we treated the nano scaffolding with this solvent, so human cells can grow along the scaffolding structure easily.

After COVID-19 arrived, everything stopped, then we think virus, bacteria and COVID-19 are made up of protein, especially spike protein over COVID-19. All over the world lacked meltblown for mask making. Therefore we tried to dip this solvent with all different kinds of nonwoven fabric, from water repealing to water absorbing fabrics, then we vaporized Staphylococcus Aureus and sprayed over them, and we found no bacteria can penetrate it in some fabric composition + some solvent combination.

We made a testing sample with the best combination, and sent it to US Nelson Lab to conduct Viral Filtration Efficiency (VFE) with Bacteriophage T4D (0.3um) as per ASTM F2101 standard, after 45 days of waiting, US Nelson Lab sent us a report that no virus can pass through.

We sent a sample to Beijing to conduct the Killing COVID-19 test as per ISO18184, after 30 days of waiting, Beijing sent us a report that 99.81% of COVID-19 was killed in the test.

We sent a sample to Guangzhou to conduct the Killing H3N2 test as per ISO18184, after 30 days of waiting, Guangzhou sent us a report that 99.99% of H3N2 was killed in the test.

We sent a sample to The Open University of Hong Kong to conduct the Killing Staphylococcus Aureus test as per BS EN ISO20743 Transfer Method, The Open University of Hong Kong sent us a report that 99.99% was killed in 60 seconds.
We patented in HK and US, and we put them in an 18 months confidential period. During the first 18 months, if someone copies me, I can jump out and sue them. After 18 months, the world will know how I do it, so I can have 18 months to prepare money for a patent lawsuit against China and India. It is a strategy.

We discovered it accidentally, then we figured out a technical path via numerous AB testing, we patented the whole technical path with a set of chemicals and fabric compositions that can arrest

and kill virus and bacteria via strong polycationic charge in air filtration. It is a patent set, and it is a totally new approach for human beings, we are the first one in the world to discover it.

7. Speaking about the virus itself, you say that it has mutated, and its multiple number of spikes has increased. The such statement can be nominated for the Nobel Prize, at least. Frankly speaking, the structure of the virus is composed of proteins, where in the corona the part that first comes into contact is called the S-protein, and how they mutated there, we still don't know. But we know for sure that getting a sample of a virus for research is tantamount to a nuclear bomb in a laboratory in our time.

In 2013, New York State Department of Health already discovered S-Protein over coronavirus is strong negative charged.

In 2020/8-9, scientists discovered mutation of COVID-19 got 10 times more S-Protein as infection rate spiked.

You got something with a strong negative charge, and it got 10 times more, as a result, mutation of COVID-19 became much stronger in negative charge. It is a logical induction.

We rely on negative charge electrostatic force to arrest a strong negative charge virus, so it is failing, and you can see infection rates among healthcare workers. Statistics prove this induction already.

In the University of Hong Kong, they tested and verified that, even if you put on a meltblown mask, you still got 1/3 of chance to get infected by COVID-19.

Everything I mentioned is verified, once you connect those dots, you will know why masks can't stop COVID-19 like SARS, and once you know why, you will know the solution.

8. Reg. chart table PP1 PP2, and so below if you read, they are supposedly used in masks 3M N95. And at the beginning it is indicated that the material can be washed 60-80 times. Based on the table, they say that the material is PP2. But as a person who works with masks with respirators of the N95 class, I will say that PP2 and PP1 are fully deciphered as FFP1 and FFP2, and in fact speaking it is a meltblown which is made on oil mist, and not on something specific that can be machine washed. as mentioned in the article. FFP1 and FFP2 are not used in conventional medical masks (there the price will be 5-7 times more expensive for such a mask).

You get it wrong.

PP1 is linear polypropylene to make meltblown.
PP2 is copolymer polypropylene to make meltblown.

PP1 is a major ingredient to make good meltblown like 3M 1860, and it showed the efficiency of PP1 meltblown will drop from 99% to 75%, and Boston Northeastern University verified that 3M they received only got 75% left.

PP2 is so called rubbish dump sales masks, they are so cheap and everyone uses it, and everyone gets infected and now you know why.

Electrostatic force will be discharged when they experience hot temperature and high humidity. Even if you use a plastic bag to seal it, it is still experiencing a hot temperature inside the container. Container itself can reach 58C, and the mask needs to stay inside the container for 30 days if I need to send it over Pacific Ocean.

FFP1 / FFP2 / FFP3 is mask standard according to EN149, it is nothing related to PP1 and PP2.

9. You claim it retains and kills germs even after washing (up to 80 times). - the article indicates that the product has a deadly positive charge for the microbe. Okay, then the electret is mixed in. I told you about electrets which are, and how long they live. When in contact with water, the electret (which is doesn't matter if it is organic or not organic) that is in the composition of the surface of the tissue is simply disassociated, therefore there will be no filtration and microbe capture effects at all. (And who will wash the mask 80 times?)

You can maintain a strong positive charge with a strong polycatic polymer structure, instead of relying on an unstable physical phenomenon. Our positive charge is 3 times stronger than Chitosan, it is the magic of Curie.

You can't use water to wash out strong polycatic properties for a chemical structure.

I am so happy that finally I got someone to understand the meaning of it from a technical angle, I am very happy to set up a WhatsApp group between you, Eric and me, so we can share our technical point of view deeply to win the war on COVID-19.

Face Mask which Arrest and Kill COVID 19
攔截及殺滅新冠病毒的口罩

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