Chemical clouds from the evaporation / volatilization / levitation of solutions with graphene and its ionization

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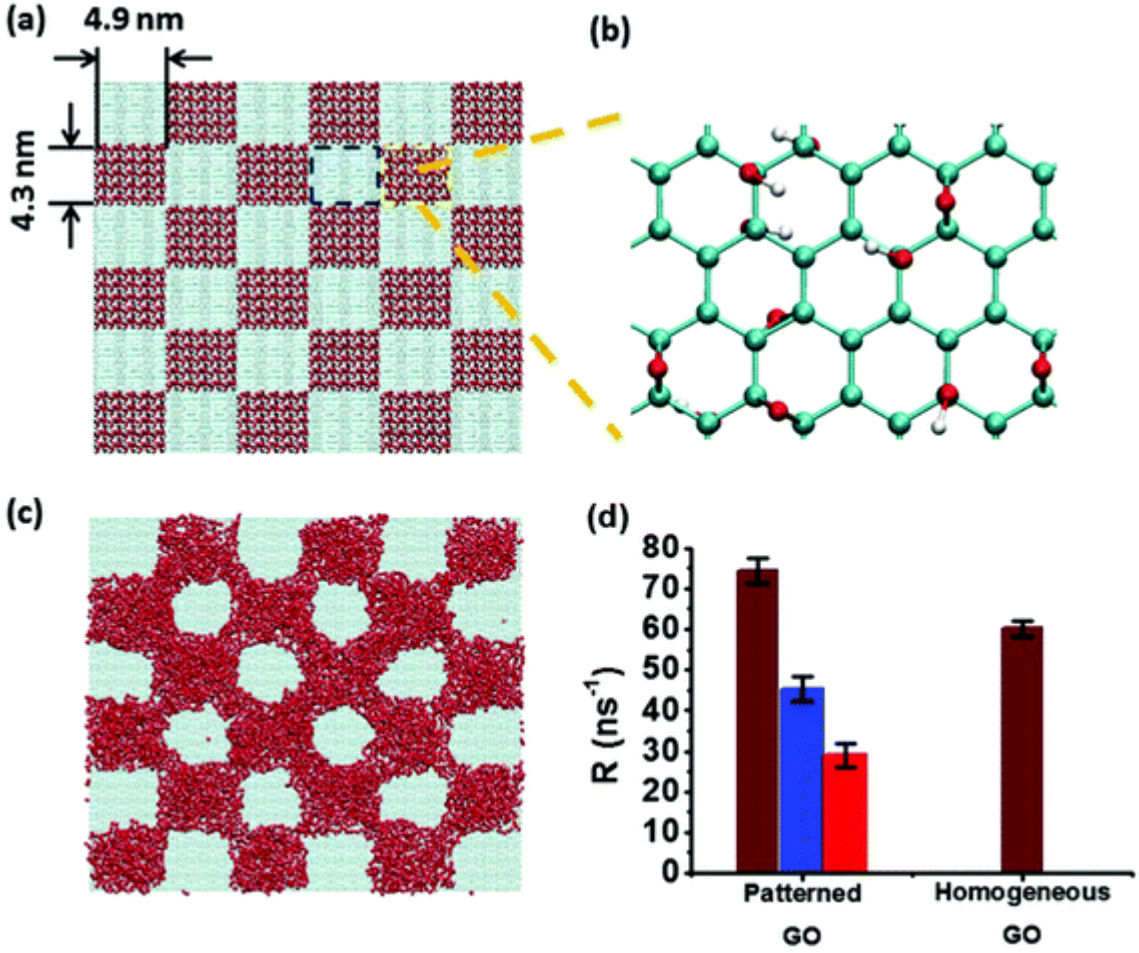

Introduction

- One of the most complex phenomena to unravel, both due to secrecy and the lack of freely accessible scientific documentation, is the issue of "chemtrails" or chemical trails left behind by some planes. In a previous post, the article by (Herndon, JM; Hoisington, RD; Whiteside, M. 2020) was analyzed, which showed the existence of chemical clouds due to direct fumigation , which did not respond to the radiometric spectrum of water vapor. The existence of « *tropospheric and stratospheric aerosol injections* » including silica aerogels, with the possibility of including graphene ones, has also been clarified (Vukajlovic, J.; Wang, J.; Forbes, I.; Šiller, L. 2021), see entry on solar geoengineering. It seems clear that regardless of the reason or ultimate purpose of these actions, the fumigation of the skies is an incontestable fact, also evidenced by studies on aerosol samples (Pöschl, U. 2005 | Shiraiwa, M.; Sosedova, Y.; Rouvière, A.; Yang, H.; Zhang, Y.; Abbatt, JP; Pöschl, U. 2011).
- This entry analyzes the possibility that the chemical clouds observed in the sky do not only correspond to chemtrails or fumigations carried out from airplanes. The phenomenon of chemical clouds could be even more complex than it seems. There is a high probability that there are chemical clouds produced by the evaporation of water/fertilizers/phytosanitary products/food additives and graphene. To do this, essential references are reviewed on the accelerated evaporation of water on graphene oxide, the evaporation of pesticides in the agricultural environment, the levitation of graphene and the effects of its ionization.

Facts about the evaporation of water with graphene

- Among the applications of graphene, there are those related to water, both for filtering and decontamination (Sun, XF; Qin, J.; Xia, PF; Guo, BB; Yang, CM; Song, C.; Wang, SG 2015 | Xu, C.; Cui, A.; Xu, Y.; Fu, X. 2013 | Fathizadeh, M.; Xu, WL; Zhou, F.; Yoon, Y.; Yu, M. 2017), as to control its evaporation. It is this last application that we will analyze in this section. Specifically, the study by (Wan, R.; Shi, G. 2017) stands out, which aims to discover the optimal method to achieve the greatest possible evaporation of water in contact with graphene. In the words of the researchers «*The evaporation of minute and even nanoscale volumes of water on solid surfaces is of fundamental importance in a wide range of biological and industrial processes, such as perspiration, medical diagnostics, chip manufacturing, spray cooling, and inkjet printing* ." Among these uses and applications, sprinkling/nebulization is used extensively in agriculture, in "micro-sprinkling" irrigation *that* favors the adequacy of the temperature of the crops and their correct degree of humidity. According to (Wan, R.; Shi, G. 2017) they discovered that the «*Nanoscale water evaporation on patterned hydrophobic-hydrophilic surfaces is unexpectedly faster than on any surface with uniform wettability, and such improvement is related to the size of the patterned domain* » graphene or graphene oxide being the most suitable material for serve as a catalyst for this evaporation process, given its dispersibility and adsorption capacity. It was also concluded that " *evaporation is considerable in the non-oxidized regions* " in the graphene film used in the experiment. On the other hand, it was also stated that*decreasing the thickness of the water increases the influence of the solid surface on the outermost water molecules and prolongs the lifetime of the hydrogen bonds in these water molecules, making the outermost water molecules more difficult to evaporate* ". This means that the evaporation of water varies depending on the integrity of the molecular structure of graphene, which opens the door to the control or mediation of evaporation processes.

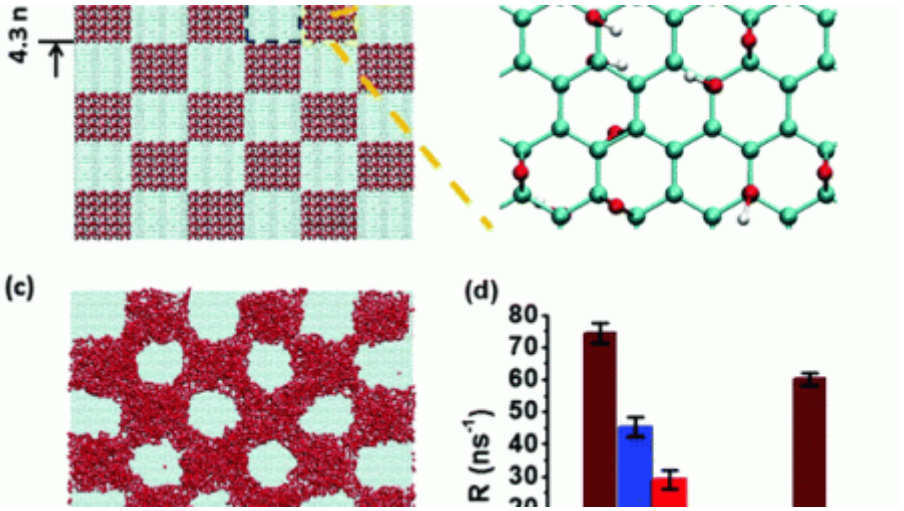

Fig.1. Water evaporation controlled by a graphene oxide GO pattern. (Wan, R.; Shi, G. 2017)

- The work of (Huang, Y.; Lu, J.; Meng, S. 2018) corroborates these results by stating that « *a graphene coating controls water evaporation by suppressing the rate of evaporation on hydrophilic surfaces and accelerating evaporation in the hydrophobes* . Added to this they indicate that " *graphene is -transparent- for evaporation. When a hydrophilic surface is coated with graphene, the water droplet contact line is drastically shortened or lengthened due to the adjustment of the wetting angles. This leads to changes in the rate of evaporation*«. These conclusions clarify that water can be evaporated depending on the molecular structure of graphene and its degree of oxidation, an observation also confirmed by (Tong, WL; Ong, WJ; Chai, SP; Tan, MK; Hung, YM 2015). These facts suggest that graphene could also be found together with water vapor based on its weight and molecular structure, as will be confirmed in the following statement of facts.

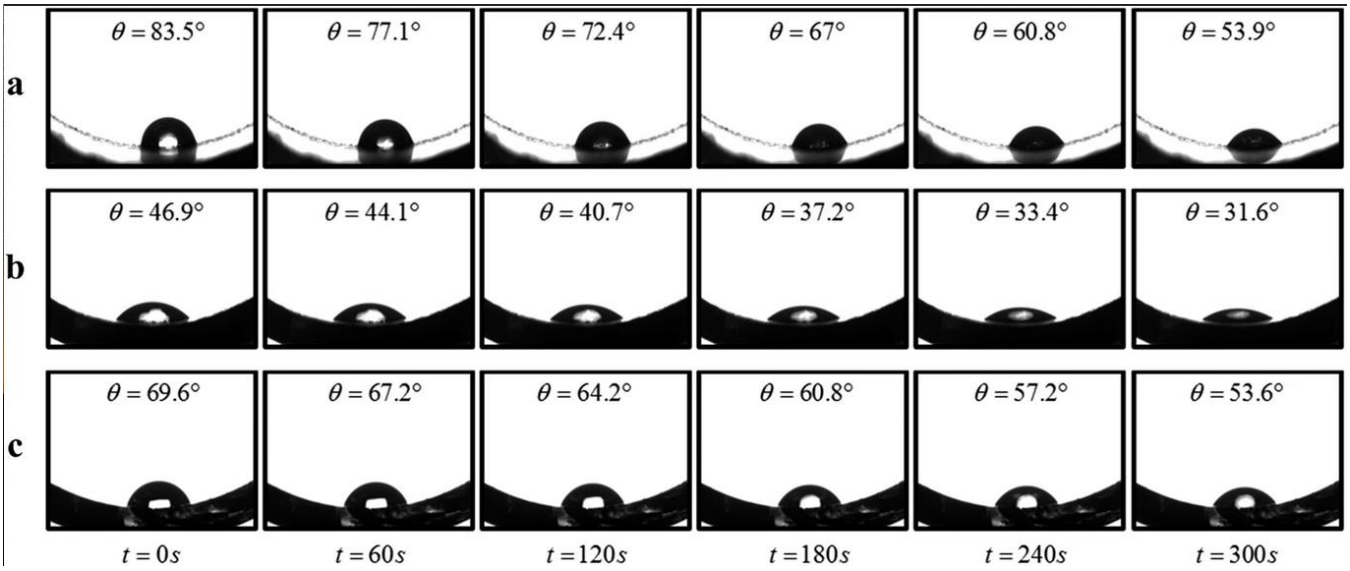

Fig.2. Evaporation model in which the evaporation process of Si with gr (graphene) is observed. Note how the particles rise with time progression. (Tong WL; Ong WJ; Chai SP; Tan MK; Hung YM 2015)

- Evaporation with graphene is possible under temperature and pressure conditions similar to those observed with c0r0n@v|rus. This is demonstrated by the research of (Grinchuk, PS; Fisenko, EI; Fisenko, SP; Danilova-Tretiak, SM 2020) in which they analyze the isothermal evaporation rate of liquid aerosols and the survival of c0r0n@v|rus in such terms. The observations made by the researchers are very unique in stating that «*The observed effect of the decrease in the concentration of viable viruses in an aqueous sample during the evaporation of a solid substrate in experiments confirms our assumption about the existence of the physical mechanism. There is at least one qualitative analogy, confirmed by different experimental data. Significant deformations of a graphene oxide sheet were discovered experimentally in an evaporating one-micron drop of water. Graphene is a very resistant material, whose elastic modulus reaches 1 TPa (Terapascal)*«. Unwittingly, the researchers found evidence that the virus had the same mechanical properties as graphene oxide (Wang, WN; Jiang, Y.; Biswas, P. 2012 | Frank, IW; Tanenbaum, DM; van-der-Zande , AM; McEuen, PL 2007), qualitatively coinciding with its evaporation rate and morphology. This could be because, with high probability, the researchers observed a form of graphene oxide that had the same appearance as the putative (and not demonstrated, nor sequenced, nor isolated) c0r0n@v|rus, as will be explained in the next section. entry.

Facts about Evaporation/Volatilization/Levitation of Pesticides and Fertilizers

- Bearing in mind that graphene oxide can evaporate when it is in aqueous or liquid solutions, as has just been explained, it would not be surprising if its intensive use in agriculture in the form of fertilizers and phytosanitary products could derive in part, in its evaporation, with the obvious consequence of chemical clouds. In this sense, the contribution of (Peterson, EM; Green, FB; Smith, PN 2020) is essential to clarify whether the formation of chemical clouds from fertilizers, phytosanitary products and veterinary pharmaceutical products for livestock is possible. From the outset, in their summary they state the recent discovery of " *airborne transportation of veterinary pharmaceuticals from industrial livestock feeding operations via particulate matter*«. This confirms that one way to treat cattle is through aerosolized clouds with the necessary drugs for their treatment (McEachran, AD; Blackwell, BR; Hanson, JD; Wooten, KJ; Mayer, GD; Cox, SB; Smith , PN 2015).

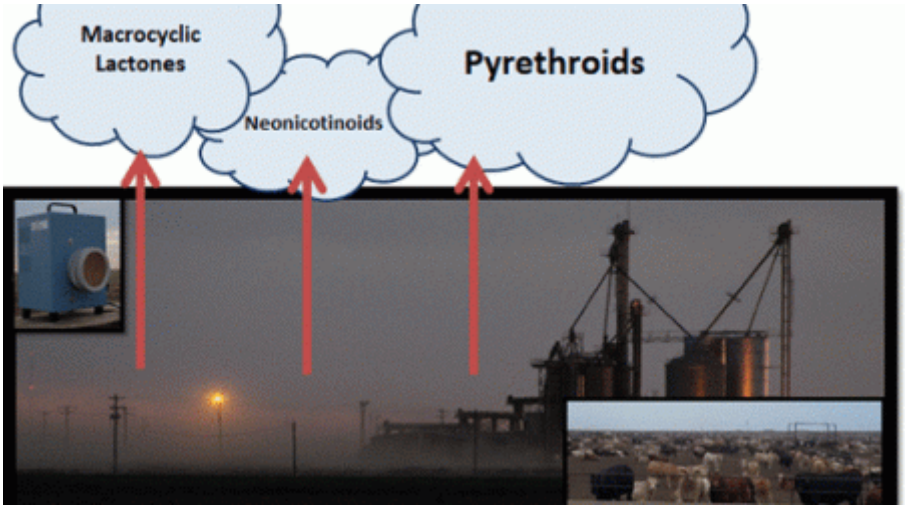

Fig.3. Formation of chemical clouds in agricultural and livestock farms. (Peterson, E.M.; Green, F.B.; Smith, P.N. 2020)

- However, the object of their investigation is to determine to *what extent insecticides are also transported into the environment by total suspended particulate matter emanating from beef cattle feeding yards. Of 16 different pesticides quantified in particulate matter samples collected from beef cattle feedlots, permethrin detected them with a frequency greater than >67% and at a mean concentration of 1211.7 ± 781.0 (SE) ng /m3* «. This statement shows that the pesticides and phytosanitary products used on the farms were found in chemical clouds, in a very high proportion. To this statement is added another even more important «*Imidacloprid was detected at a mean concentration of 62.8 ± 38.2 (SE) ng/m3 or equivalent to published concentrations in dust from treated seed planting activities* .” This result is very important because " *imidacloprid* " (C9H10ClN5O2) is a neonicotinoid or neuroactive insecticide based on nicotine, which is applied by foliar or root via irrigation water. Interestingly, there are patents for graphene oxide with " *imidacloprid* ", although under the name " *paichongding* ". This could be due to the transposition of Directive 98/8/CE of the European Parliament and of the Council, of February 16, 1998, relating to the marketing of biocides, which prohibited the use of imidacloprid, abamectin or avermectin and other chemical compounds, which were clearly harmful to health, except in closed greenhouses (due to their volatility and evaporation). According to the patent (cn107581193a. 吴 重 言; 李忠; 吴静; 陆静; 徐其 徐其 2016), the " *Paichongding* " is an insecticide composed of chloropyridine, pyridine and " *hexahydro imidazoles* " or what which is the same as " *imidazole* ", precisely one of the components of " *imidacloprid* ", as can be deduced from the dangerous substances file of the International Labor Organization ILO. Annex 1 of this entry includes some patents for graphene oxide with avermectin, paichongding. For more information, consult the patent catalog of fertilizers and phytosanitary products with graphene oxide .
- Returning to the analysis of (Peterson, EM; Green, FB; Smith, PN 2020), it is found that “ *many forage yards established in the last 50 years have been in areas that receive relatively little rainfall, similar to the high plains. These regions (U.S. Plains, Mexico, South America, and Northern Australia), are prone to drought, which exacerbates particulate generation and pesticide release from feed yards… Therefore, Aerial spread of insecticides into the local environment, via PM (microparticles), is likely to occur in food courts around the world, regardless of climatic conditions*«. This scenario could fit with that of the plains and agricultural and livestock farms in Spain, especially in the summer period, in which the humidity and temperature conditions are ideal for evaporation and the lifting of suspended particles.
- It is very enlightening to find articles on fertilizer immobilization techniques that aim to prevent loss by volatilization, in which graphene oxide GO is included. In the work of (ul-Islam, S.; Nisar, S.; Kmail, A.; Umar, A. 2018) it is shown that graphene is used intensively on farmland to fix all kinds of fertilizers (urea and nitrogen) that are characterized by a volatility of approximately 40% after 24 hours. Other works share the analysis of the problem (Yuan, W.; Shen, Y.; Ma, F.; Du, C. 2018) indicating that the losses are due to three factors «*a) volatilization in the form of ammonia that contributes to the greenhouse effect; b) leaching in the*

form of nitrates leading to eutrophication of the water body; c) runoff«. Therefore, the researchers considered the creation of a composite of graphene oxide with Polyacrylate polymer to avoid these problems. As the adsorption capacity of graphene oxide is well known, it allows the controlled release of fertilizers, however it is also known that ultraviolet radiation disintegrates the molecular structure of graphene oxide, creating quantum dots, which causes the release of fertilizers. adsorbed chemicals, thereby facilitating their evaporation and volatilization and clouds of particles in suspension by levitation. Interestingly, none of these studies addressed what happens once the full load of fertilizer is released, when light hits the graphene oxide.

- According to (Yanagi, R.; Takemoto, R.; Ono, K.; Ueno, T. 2021) graphene oxide can levitate by means of the heat induced by sunlight. This happens especially when graphene is highly porous, because it has a lower density than air. Porosity is a fundamental property in aerogels and in fertilizer and phytosanitary compounds of graphene oxide, in order to increase their adsorption and controlled release capacity.

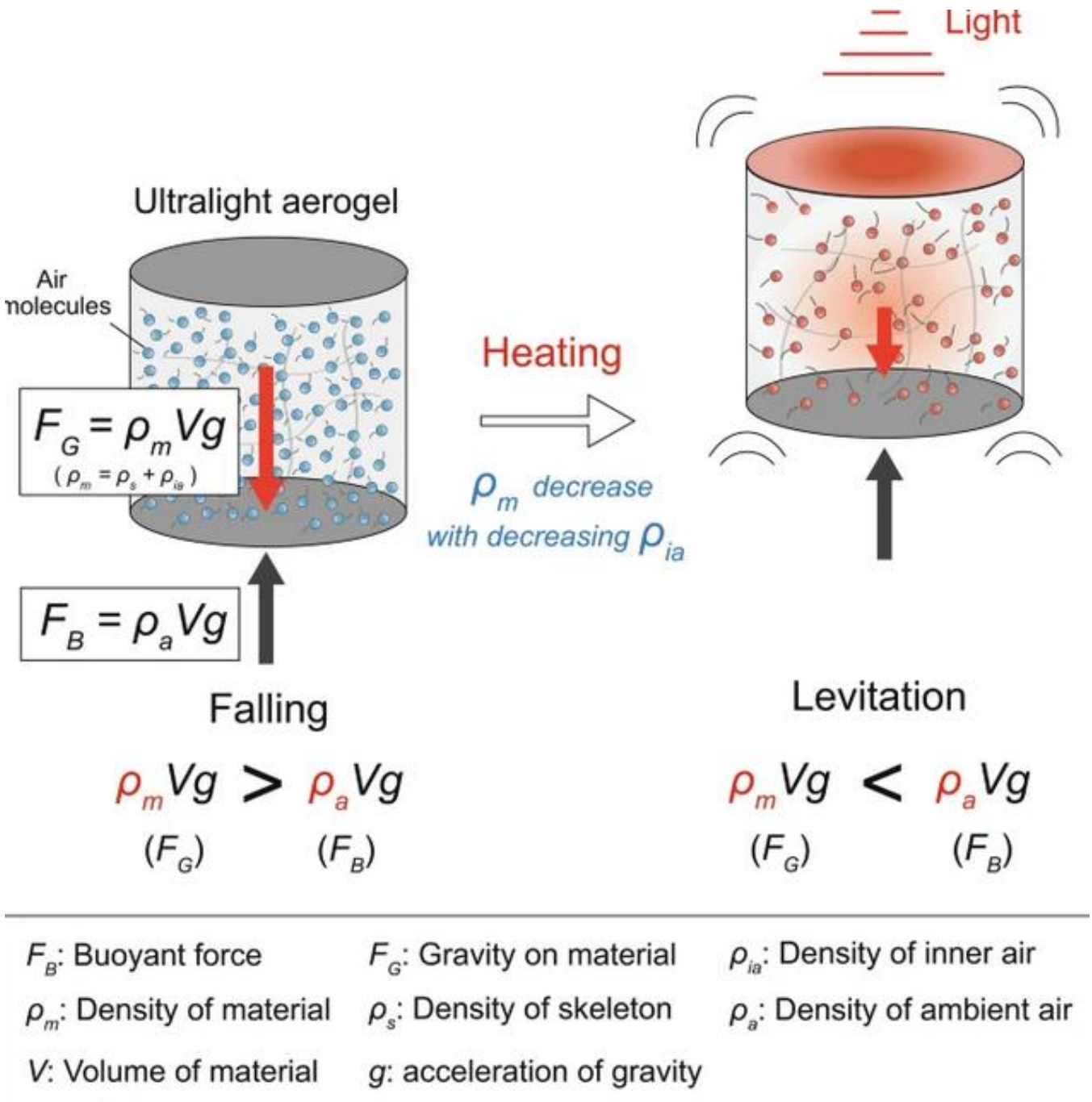

Fig.4. Scheme of levitation of CNT carbon nanotubes (graphene oxide nanotubes) airgel. (Yanagi, R.; Takemoto, R.; Ono, K.; Ueno, T. 2021)

- In this research it was concluded that " *the airgel made for the experiment could be heated instantaneously using a halogen lamp due to its high light-absorbing property and small heat*

capacity. Upon heating it was levitated by the buoyancy of the surrounding air, and the behavior of the levitation could be controlled by cycling the light source on/off. Research on the levitation of CNT (carbon nanotubes, graphene oxide in tubular-cylindrical form) aerogels using sunlight is ongoing.«. The CNT carbon nanotube airgel was tested with densities ranging from 0.25 to 1mg/cm-3, obtaining instantaneous levitation with a heating rate of 17°C/s. This effect was noted by (Zhang, T.; Chang, H.; Wu, Y.; Xiao, P.; Yi, N.; Lu, Y.; Chen, Y. 2015) in their work on macroscopic light propulsion directly onto bulk graphene. It was found that " *macro graphene-based objects could be propelled directly by a watt-level laser, and even sunlight, down to sub-meter scale… the propulsion could be further enhanced by increasing the intensity of the light and/or improving the lighting area* ."

Effects of ionization on graphene

- The effects of ionization on graphene are complex, since it causes the opposite effect to adsorption, that is, the desorption of ions and the generation of ionized species (free radicals). According to (Kim, YK; Na, HK; Kwack, SJ; Ryoo, SR; Lee, Y.; Hong, S.; Min, DH 2011) when applying an ionizing laser on graphene oxide, it was transformed into graphene oxide reduced rGO, to end up forming multi-walled graphene/carbon nanotubes, known as MWCNTs.

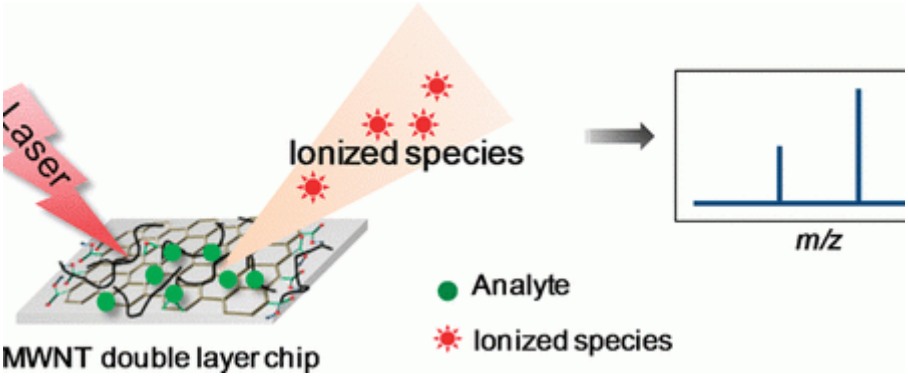

Fig.5. Effects of ionization on graphene oxide. (Kim, YK; Na, HK; Kwack, SJ; Ryoo, SR; Lee, Y.; Hong, S.; Min, DH 2011)

- This GO-reducing effect was also observed in the study by (Cutroneo, M.; Havranek, V.; Mackova, A.; Malinsky, P.; Torrisi, L.; Lorincik, J.; Stammers, J. 2019) stating that " *an ion microbeam is an efficient way to deoxygenate graphite oxide sheets and produce reduced graphene oxide to improve relative carbon content (C/O ratio, carbon/oxygen) to increase electrical conductivity* " . This offers important evidence, given that reduced graphene oxide increases electrical conductivity, so its presence in chemical or hybrid clouds with water vapor and other pollutants can increase the electrical activity of the atmosphere.
- To complete the picture, it is essential to cite the work of (Wang, Z., Yu, C., Huang, H., Guo, W., Yu, J. and Qiu, J. 2021) that offers a holistic view of the incidence of microwaves in carbon chemistry, especially at the nanometric scale. As stated, " *Microwaves are electromagnetic waves that exhibit a sinusoidal variation of electric and magnetic fields. The microwave frequency is from 300 MHz to 300 GHz, in which the 2.45 GHz frequency is most often used* ." The heat conducted by electromagnetic radiation causes the polarization and excitation of carbon materials, increasing their temperature, causing the effects of desorption, exfoliation, reduction, doping, but more importantly «*Due to the strong interaction between the almost freely moving electrons and the electric field, the kinetic energy of these electrons increases and allows them to quickly jump out of the conjugated area on the carbon surface, resulting in ionization of gaseous species. . with an obvious emission of light in limited time and space. This phenomenon is perceived as arc or discharge plasmas. And an intensive generation of such ionized species/plasmas may have great potential for the microwave reactions involved due to the characteristics of microscale dimensions and unique high energy density* ."

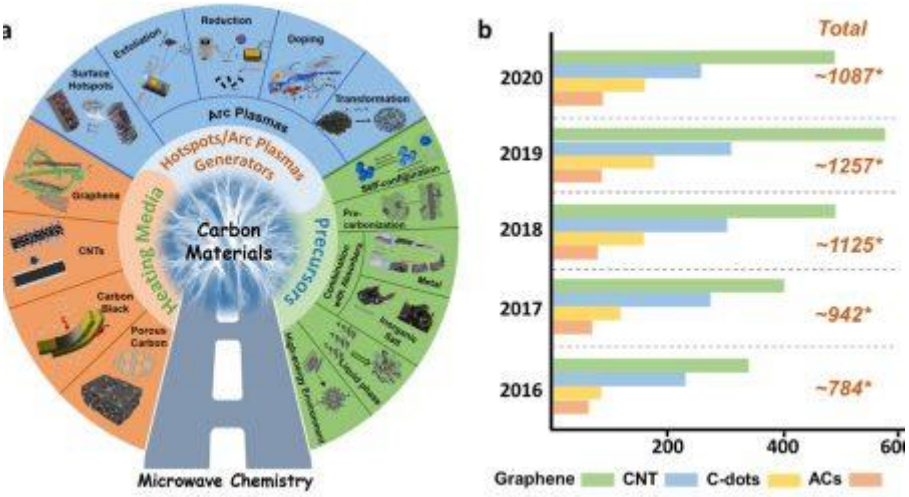

Fig.6. Microwave carbon chemistry. (Wang, Z., Yu, C., Huang, H., Guo, W., Yu, J. and Qiu, J. 2021)

Opinions

- It is shown that graphene could form chemical clouds with other components (present in fertilizers, pesticides, etc.), if it has an adequate density, high degree of porosity and is in a liquid solution, susceptible to evaporation. It can also be carried away by hot air currents and form chemical clouds of dust, along with other materials. Taking into account the scientific facts, the presence of graphene in the clouds as a result of a heating and evaporation process is highly probable, especially in the summer period, in dry climates.
- If it is considered that there are chemical clouds in which there may be a concentration of graphene or graphene oxide, not yet quantified (in the absence of further studies), it is very likely that they will have an impact on an increase in electrical activity. This, together with the effect of electromagnetic waves (microwaves), the multiplier effect and electromagnetic absorption of graphene oxide, causes the ionization of chemical clouds, generating a desorption effect, which causes rain or precipitation of water, fertilizers, pesticides, phytosanitary products or nucleated chemical compounds in their aerosol phase in the air. It is also claimed that the ionization of graphene generates the release of free radicals and ionized species that could be behind the unusually high radiation values. Obviously, pulses of ionizing radiation,they seem to fall outside the natural pattern of the phenomenon. However, it is possible that the electromagnetic pulses of the meteorological, military and observation radars for air control cause a rebound effect in the magnetized particles of graphene oxide (and presumably magnetite Fe3O4), inevitably generating a pulse of radiation. ionizing For this reason, it is essential to observe and carry out research on atmospheric aerosols throughout the Iberian Peninsula, as well as the location of radiation pulses, to ensure their origin and rule out other hypotheses.cause a rebound effect in the magnetized particles of graphene oxide (and presumably magnetite Fe3O4), inevitably generating a pulse of ionizing radiation. For this reason, it is essential to observe and carry out research on atmospheric aerosols throughout the Iberian Peninsula, as well as the location of radiation pulses, to ensure their origin and rule out other hypotheses.cause a rebound effect in the magnetized particles of graphene oxide (and presumably magnetite Fe3O4), inevitably generating a pulse of ionizing radiation. For this reason, it is essential to observe and carry out research on atmospheric aerosols throughout the Iberian Peninsula, as well as the location of radiation pulses, to ensure their origin and rule out other hypotheses.

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Appendix 1

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