Article 1

What concept is used in order to describe the energy used by a vehicle/animal to move from one place to another? What makes the robots developed by the authors energetically efficient?

Could this be used in a medical application? What are the challenges for a medical application? On a similar topic, the article mentions potential applications in "environmental exploration, structural inspection, information reconnaissance, and disaster relief". Why would it be better than current robots?

Can this type of robot be scaled up? What challenges and limitations would the researchers face?

What is a "Duty Cycle"?

The robot is tethered. It is powered by wires. What solutions would you propose to make the robot useful in real life but with the condition of the robot still being tethered?

Figure 2E (main article) and Figure S5 (supplementary material) show the physical model of the dynamic system of the robot. Could you model the physical model in a more complex way? Would it be useful?

What key advancements are achieved in the insect-scale soft robots introduced in this work, and how do they address the challenges mentioned in the text?

What is the conclusion of the comparison of the soft robots with the mammals and the arthropods?

What is the possible application for such a robot?

The article talks about the robot being used in disaster relief situations. Which limitations do you see regarding such real-life implementations?

Where are the limits to reduce the size of the robot and it is possible to use this technology for nano robot?

What are some potential limitations of the current design, and how could these be addressed? For example, are there any tasks that the robot is unable to perform effectively? Are there any trade-offs between the robot’s speed, durability, and other capabilities that could be improved upon? Finally, what further research is needed to continue developing the technology behind the soft robot?

How does the robot's exceptional robustness open the door for new potential applications it wouldn't have been capable of had it been less robust?

Can we use PZT for in-vivo applications?

Compared to other soft robots, what are the advantages of this prototype in addition to its speed?

Article 2

What types of materials are used to manufacture such micro robots and what are their properties that enables them to generate motion?

How do the size and scale of the robot affect their navigation? What techniques are used to address their issue related to their such small scale?

What type of light sources can be used to power the robots?

Is there a way that the micro robots could communicate with each other for example to imagine create an immune system?

Taking the fact that they control the robot with light information for now, in which domain actually the robot can be use?

How long would it take the robot (Fig 3) to travel the human body?

What are the differences and advantages of an antbot compare to a dogbot?

How is it possible to build a so small robot?

The article states that the microrobots are actuated by light, in addition to the fact that they could be used for medical applications. How might the robots be actuated when in environments that are not immediately accessible by light, like inside the body?

At such a small scale, one could assume that dust particles could easily absorb photons targeted to the PVs. To what extent is the movement of these robots impeded in a typical environment where dust particles move randomly.

What changes should be made on the robots to allow them to be used in water and swim. Or said differently, what currently prevents the robots from being used in liquid?

Since the robots are powered by light, is there a solution for the power supply when there is no light supply for situations like drug delivery?

What are the potential challenges of navigating rough terrain or swimming in a viscoelastic media?

The researchers hope to use this robot for targeted drug delivery. How would it be possible to guide the robot inside the human body knowing that it uses light to move and specific light signals for a more accurate control?

How was in this research the integration of information systems made possible?

The article indicates that microscopic robots already exist but lack onboard control. What applications can onboard digital control provide and to what extent can this make this robot more autonomous and intelligent?

Why release robots into an aqueous solution and why is the Ph important?

What is a shift command?

Article 3

What is the role of retroreflectors and colorimetric sensing materials in the context of telemetry and localization of submillimeter-sized robots?

What is the principle and reason behind integrating retroreflectors and colorimetric sensing materials into submillimeter-scale robots?

I don't understand how these robots could be use in the human body, as they need laser to move. Could you explain in more details the principle of their motion system and how it can be use in this kind of practice?

Explain how does the telemetry work.

How is temperature affecting SMA, and what are the austenitic and the martensitic phases?

Explain how to robots can be used to monitor the humidity and light of en environment.

What are the organic and inorganic materials?

The article says that the robots are actuated by patterned laser exposure. With this actuation in mind, how can you utilize them in real-life environments like clinical medicine?

What are colorimetric materials?

Why were the telemetry and localization capabilities added?

Regarding the actuation mechanism, can you find any logistical issues with the need of lasers?

Which physical limitations become most prominent when encountering further miniaturization of this device?

What are the organic and inorganic materials used in the robot?

Would it be possible to make such a small-scale robot go underwater?

What is photolithography? What is wet etching?