

18 August 2005:

To assess how many Nobel Prizes I already deserve, we must look to past Nobel Prize works. For each of my major discoveries, I'll do a preliminary comparative evaluation.

## **1. Discovering and demonstrating memory to be electromagnetic particles, and how memory in the form of electromagnetic particles accounts for and naturally manifesting in animal and human mental and neuromusculoskeletal functions.**

As aforesaid, my discovering and demonstrating memory is itself a fantastic breakthrough, as fantastic as Planck's quantum concept. He won a Nobel Prize for doing that. Why shouldn't I having so unlocked the mystery of the mind be given a Nobel Prize? Is my great discovery insignificant enough to qualify for only being a portion of a lifetime achievement Nobel Prize to be given much later in life, and definitely much later than someone else having achieved the same or having achieved much less? It is a universal concept that anyone discovering and demonstrating what memory is would be sent way up to the stratosphere the very next moment. **Why when I'm that discoverer of this same great breakthrough it doesn't even win me a meagre Nobel Prize?**

19 August 2005:

In 1918 Dr. Max Planck was given the Nobel Prize in recognition of investigations into, and the development of a mathematical formula for, the quantum theory on the elementary quanta . . . . which was originally connected with black-body radiation. "The formula contained two constants; one, as was demonstrated, gave the number of molecules in a gram molecule of matter. Planck was also the first to succeed in getting, by means of the said relation, a highly accurate value for the number in question, the so-called Avogadro constant. The other constant, the so-called Planck constant, proved, as it turned out, to be of still greater significance, perhaps, than the first. The product  $h\nu$ , where  $\nu$  is the frequency of vibration of a radiation, is actually the smallest amount of heat which can be radiated at the vibration frequency  $\nu$ ." ([www.nobelprize.org](http://www.nobelprize.org))

So, for mathematically verifying that  $h\nu$  is actually the smallest amount of heat ( $E$ ) which can be radiated at the vibration frequency  $\nu$  Planck was given a Nobel Prize.

Comparatively, for discovering and confirming memory being electromagnetic particles emanating from or representing the various objects or stimuli of which memories are formed, I have established the substance or mechanism of a phenomenon in as much a significant and comprehensive manner as Planck did in his formulation of  $h\nu$  being actually the smallest amount of heat which can be radiated at the vibration frequency  $\nu$ .

Although I could say that memory particles are in the form of  $h\nu$ , this is not exactly correct. That's because in saying that memory particles are in the form of  $h\nu$ , I must first accept Planck as being totally correct. My discovery is not about whether Planck was correct. Instead, it's about what is the fundamental substance stored in our brains to be re-sensable, reusable as memories. These are two quite separate and different entities of phenomenon: in the case of Planck's  $h\nu$ , he was saying that the smallest amount of heat which can be radiated at the vibration frequency  $\nu$  is  $h\nu$ . It's about radiation, nothing

concerning what is stored in our brains for us to sense and use as memory.

In my case, then, I must first discover and confirm that memory is actually electromagnetic particles, not molecules. Planck certainly wasn't aware of memory being electromagnetic particles registered into the brain neurons. He was purely dealing with radiation energy, nothing to do with sensing or remembering. His and my discoveries are two quite different and to a large extent unrelated phenomena.

However, if I blindly or in some ways irrelevantly quote his to generalize that memory is stored as quanta of energy into the brain, I would be even slightly off the mark. That's because even though in a blackbody radiation the smallest amount of heat which can be radiated at the vibration frequency  $\nu$  is  $h\nu$ , in memory formation all we want to know is what is the substance constituting the memory, in this case, electromagnetic particles. Only then would we be in a position to further state whether they are necessarily in the  $h\nu$  form.

The originality and difficulty in my discovery is uncovering electromagnetic particles as the fundamental substance stored in our brains to be re-sensable, reusable as memories. That's something Planck or anybody else never envisioned. Only I alone even also proved that to be the truth,<sup>1</sup> the same as Planck's mathematically proving his theory  $h\nu$ .

In this respect, I have done much more extensive and conclusive verification of my preceding discovery, namely that memory is the registration of electromagnetic particles into our brain neurons,<sup>2</sup> than

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<sup>1</sup>KC Cheng, *Cheng alone discovered and proved memory, mind, wilful locomotion, colour vision, motion perception, . . . and now also emotion*, <http://KC Cheng.net>

<sup>2</sup>KC Cheng, The Electromagnetism of Memory, Mentation and Behaviour.  
Volume 1. Unpublished manuscript. Winnipeg, Canada: KC Cheng Press, 1976.  
KC Cheng, The Physics of Colour. Unpublished manuscript, 1977(?) - 1995.  
KC Cheng, Theory of Biogenesis. Volumes 1-36. Unpublished manuscript, 1977-2001.  
KC Cheng, The Electromagnetism of Memory, Mentation and Behaviour.  
Volume 2. Unpublished manuscript. Brockville, Canada: KC Cheng Press, 1988.  
KC Cheng, The Electromagnetism of Memory, Mentation and Behaviour. Volumes 3-19.  
Unpublished manuscript. Toronto: KC Cheng Press, 1992-96.  
KC Cheng, *Cheng Review*, I: 3, 1997.  
KC Cheng, *Cheng Review*, I: 4, 1998 a.  
KC Cheng, Mystery of the Mind. Toronto: K. C. Cheng Press, 1998 b.  
KC Cheng, The Electromagnetism of Memory, Intelligence and Mind. A video set (132 hours). Toronto: KC Cheng Press, 1999.  
KC Cheng, The Neurophysics of Telepathy. A video. Shenzhen, China: KC Cheng Press, 2001a.  
KC Cheng, N Lecture 2000: Colour Perception. A video. Shenzhen: KC Cheng Press, 2001b.  
KC Cheng, N Lecture 2001: The Mind in Formation. The Mind of Creatures. A video. Shenzhen: KC Cheng Press, 2001c.  
KC Cheng, Unpublished personal observation, 2002.

Planck did for his  $h\nu$ . That's because :

The specific heat of substances, Stokes' Law for phosphorescence and fluorescence phenomena and the photoelectric effect provide, as [Einstein](#) has first suggested, most powerful support for Planck's radiation theory . . . . A still greater triumph was enjoyed by Planck's theory in the field of spectral analysis, where [Bohr's](#) basic work, the work of Sommerfeld and Epstein, and other complementary efforts provided an explanation for the enigmatic laws ruling within this part of science. Recently, basic physico-chemical phenomena, such as the effect of temperature upon speed of reaction and the heat of reaction, have also had a new light shed upon them as a result of the work of W.C. McCullagh, Lewis, [Perrin](#) and others, using Planck's theory. ([www.nobelprize.org](http://www.nobelprize.org))

Just like with so many others proving Planck to be correct, through my work on memory and the mind, I also later proved light being electromagnetic particles as originally proposed by Issac Newton. Obviously I've done my own original and independent thinking to confirm what memory is, and, in and after proving memory being electromagnetic particles I was able to further prove correct other physicists' hypotheses or suppositions.

Both in terms of the significance of the discoveries, and the depth and the scope of demonstrating our discoveries, as compared to Planck, I deserve as much as, if not more, of a Nobel Prize than him.

On the issue of the depth, scope and completeness of my discoveries, examples abound in the Nobel Prize precedents to illustrate that I have long exceeded Nobel requirements (Table 1).

Table 1. The depth, scope and completeness of many notable Nobel Prize discoveries

	depth and scope	completeness
Planck's $E=h\nu$	just the formula proven	
Einstein	explaining Brownian movement, formulating the photoelectric effect equation	complete but lots related or foundational work done by others

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KC Cheng, **Volition**, 2002.

KC Cheng, Emotions: a Cortical Repertoire, 2003, 2004.

<p>Mme Curie</p>	<p>1903 given one Nobel on discovering polonium. and radium</p>	<p>1911 given another Nobel Prize for continued work on the same compounds radium and polonium</p>
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20 August 2005:

The case of Einstein provides further insight into how extensive and vast my work has progressed from unlocking memory into demonstrating the mind.

19 August 2005:

On Einstein's receiving a Nobel Prize in Physics in 1922:

In 1905 Einstein founded a kinetic theory to account for the Brownian movement by means of which he derived the chief properties of suspensions, i.e. liquids with solid particles suspended in them. . . .

A third group of studies, for which in particular Einstein has received the Nobel Prize, falls within the domain of the quantum theory founded by Planck in 1900: radiant energy consists of individual particles, "quanta" . . . . Then Einstein came with his work on specific heat and the photoelectric effect. This latter had been discovered by . . . Hertz in 1887. . . . A more exhaustive study of this phenomenon was carried out by Hallwachs . . . . In 1899 Lenard demonstrated the cause to be the emission of electrons at a certain velocity from the negatively charged body. . . .

An associated phenomenon is photo-luminescence, i.e. phosphorescence and fluorescence. When light impinges on a substance the latter will occasionally become luminous as a result of phosphorescence or fluorescence. Since the energy of the light quantum increases with the frequency, . . . a light quantum with a certain frequency can only give rise to the formation of a light quantum of lower or, at most, equal frequency. Otherwise energy would be created. The phosphorescent or fluorescent light hence has a lower frequency than the light inducing the photo-luminescence. This is Stokes' rule which was explained in this way by Einstein by means of the quantum theory.

Similarly, when a quantum of light falls on a metal plate it can at most yield the whole of its energy to an electron there. A part of this energy is consumed in carrying the electron out into the air, the remainder stays with the electron as kinetic energy. . . . Consequently, only light having a frequency greater than a certain limit is capable of inducing a photo-electric effect, however high the intensity of the irradiating light. . . .

This Einstein's law of the photo-electrical effect perfected to a high degree the quantum theory for which an extensive literature grew up . . . . Einstein's law has become the basis of quantitative photo-chemistry in the same way as Faraday's law is the basis of electro-chemistry (Excerpted from [www.nobelprize.org](http://www.nobelprize.org)).

20 August 2005:

If we properly recognize the equivalent significance of my establishing memory being electromagnetic particles to Planck's founding the quantum concept, and equivalent to Einstein's equation of photo-electricity (Table 2), the bulk of post-Einsteinian quantum physics development

would be like what I have done with memory: further demonstrating how it provides the sensory basis for our thinking and wilful locomotion.<sup>3</sup> In other words, by delving from memory into the mind itself, I have gone way beyond what's necessary to win a Nobel Prize for either Einstein or Planck. The portion I have developed beyond the sole confirmation of memory being electromagnetic particles, namely, the illustration of how the mind operates using memory electromagnetic particles as its main sensory foundation, due to its significance is not simply the equivalent of a large bulk of post-Einsteinian quantum physics development. Instead, it can be likened to what gave Mme. Curie her second Nobel Prize (Table 2). Measured in that way, for the discovery and confirmation of memory being electromagnetic particles, and the additional demonstration of how the mind works, I should have been given two Nobel Prizes.

19 August 2005:

In the case of Mme Curie, a Nobel Prize in Physics was given in 1903 to Henri Becquerel, Pierre & Marie Curie.

Becquerel found . . . demonstrated that in particular all the salts of uranium emit rays of a special nature, distinct from ordinary light. . . . Becquerel made the discovery of spontaneous radioactivity . . . .  
.. At this point M. and Mme. Curie undertook . . . research into this topic, . . . found that thorium possesses radioactive properties to about the same degree as uranium. . . . polonium was discovered by M. and Mme. Curie, radium also by them in collaboration with Bémont, . . . (excerpted from [www.nobelprize.org](http://www.nobelprize.org))

She was again given a Nobel Prize in Chemistry in 1911 "in recognition of the part she played in the development of chemistry: by the discovery of the chemical elements radium and polonium; by the determination of the properties of radium and by the isolation of radium in its pure metallic state; and by her research into the compounds of this remarkable element." ([www.nobelprize.org](http://www.nobelprize.org))

August 20, 2005:

Mme Curie is a prime example of Nobel Prizes being awarded to those having made a significant breakthrough and still working on even the same project. Completing further work on just the same project is not required to win the first Nobel Prize. This was so the case with Planck who did not have to do Einstein's work to win a Nobel Prize, and the same with Einstein who did not have to do others' further work on photo-electricity to get his.

August 21, 2005:

This traditional trend can also be readily demonstrated in physiology/ medicine. For instance, just to take one of the most famous cases as an illustration, we look at Watson, Wilkins, and Crick's DNA.

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<sup>3</sup>See preceding footnotes on the total volumes I have authored on memory, perception and mental processing.

Table 2. The depth, scope and completeness of my work as compared to Nobel Prize discoveries, part 1.

My (Cheng's) memory theory	equivalent to		
memory being electromagnetic particles (eMs)	Planck's $E=h\nu$ , or his founding the quantum physics	Einstein's photoelectricity formula	Mme Curie's identifying polonium and radium
memory eMs giving rise to various mental and neuromusculo-skeletal functions <sup>4</sup>	a considerable bulk of the quantum physics		Mme Curie's determining the properties of radium and isolation of radium in its pure metallic state

August 20, 2005:

In 1962 for the discovery of the three-dimensional molecular structure of the deoxyribonucleic acid - DNA, the Nobel Prize in Physiology or Medicine was awarded to James Dewey Watson, Maurice Hugh Frederick Wilkins, and Francis Harry Compton Crick.(  
[www.nobelprize.org](http://www.nobelprize.org) )

August 21, 2005:

Although this DNA Nobel Prize has made Watson and Crick household names, certainly ubiquitous in most of the high school and University biology texts, these Nobel laureates were never required to do any work in addition to ascertaining DNA's molecular structure. Nowadays very sophisticated DNA tests exist to catch criminals or establish parentage etc. It's a whole new field altogether. But were Watson, Crick and Wilkins required to do all that additional work before being given Nobel Prizes? Certainly not. To be so honored, they only had to ascertain DNA's molecular structure, a discrete part in the whole field of DNA biochemistry,.

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<sup>4</sup>See preceding footnotes on the total volumes I have authored on memory, perception and mental processing.

Compared to my case, I would only have to 1) identify and confirm memory being electromagnetic particles without 2) demonstrating the various functional manifestations such as the operation of the mind, which I have also done,

for me to win a Nobel Prize in the same way as

Watson Creek and Wilkins being giving Nobel Prizes just for 1) the molecular structure of DNA without 2) developing the whole field of DNA clinical biochemistry such as the various methods of DNA matching, etc. (Table 2, part 2)

Table 2. The depth, scope and completeness of my work as compared to Nobel Prize discoveries, part 2.

My (Cheng's) memory theory	equivalent to
memory being electromagnetic particles (eMs)	Watson Creek and Wilkins' ascertaining the molecular structure of DNA
memory eMs giving rise to various mental and neuromusculo-skeletal functions <sup>5</sup>	a considerable bulk the whole field of DNA clinical biochemistry such as the various methods of DNA matching, etc.

These prominent precedents prove correct what was said in my 1) January 16, 2004 letter:

“ . . . we must consider the prospect of awarding a separate Nobel Prize for *emotions*. Why? Because when I have already exceeded requirements for one single Nobel Prize, a prize should have been given to me already. To deny me a Nobel Prize simply because I could not or have not done what is unnecessary to win one is manifestly unfair.”

and in my June 24, 2004 letter:

“It does not appear that I could get it (*Emotions, a Cortical Repertoire*) included in this Nobel Prize. If it's good enough for inclusion or mentioning by the Nobel Prize system, I am sure there are alternative ways to do it.”

Because for all the work I have completed on memory and its clinical/functional manifestations I already deserve two Nobel Prizes( Table 2), demanding that I finish my future work on *emotions* which by itself deserves at least another Nobel Prize, is demanding that Planck complete the work for the whole field of quantum physics for him to win his Nobel Prize. This is a grotesque

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<sup>5</sup>See preceding footnotes on the total volumes I have authored on memory, perception and mental processing.

violation of Nobel precedents. If this standard is without exception adhered to throughout, maybe only two or three people, if any, could have ever won Nobel Prizes since 1900.

In my January 16, 2004 letter I said “ It certainly is not my intention to win more than one Nobel Prize in medicine.” But it is not against the Nobel precedents to give more than one Nobel Prize to one single candidate. The case of Mme Curie illustrates that well.

Why when it comes to me all these well-established Nobel rules or precedents are to be violated to my detriment?

During the process of demonstrating memory being electromagnetic particles giving rise to the various observed brain functions, I also more comprehensively than ever before done by anybody explained how images are processed from the retinae all the way into the visual cortices.<sup>6</sup> Without my work, our understanding of the visual processing would have remained fragmentary, not wholesome, not in a way that we could understand or accept as how we see things. Although this total visual processing, just like overthrowing the Young-Helmholtz trichromatic color vision theory, is intimately related to though not necessarily an integral part of demonstrating memory being electromagnetic particles giving rise to the various observed brain functions; standing all by itself it also deserves another Nobel Prize. Hereunder I illustrate why (2) total visual processing and (3) overthrowing the Young-Helmholtz trichromatic color vision hypothesis can each qualify for one Nobel Prize.

## (2) **Total visual processing**

Many grey areas of visual processing from the retina passing into the visual pathways and then the visual cortices remained prior to my own work. Only topographic projection of retinal images all the way into the visual cortices can account for how we see things in their proper colors, shapes and forms in the exact topographic arrangement as are on the objects being seen. Otherwise, colours, sizes, shapes of the various objects being seen would not match those on the objects themselves. I successfully clarified other scientists' various misunderstandings along the visual pathways to make it possible for us to see that this topographical projection from retinae to the visual cortices can and do occur. Because of this, further, motion perception can be readily achieved.<sup>7</sup>

To show that this work all by itself deserves another Nobel Prize, we quote the case of David H.

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<sup>6</sup>KC Cheng, The Electromagnetism of Memory, Intelligence and Mind. A video set (132 hours). Toronto: KC Cheng Press, 1999.

<sup>7</sup>KC Cheng, N Lecture 2000: Colour Perception. A video. 2<sup>nd</sup> ed., Toronto: KC Cheng Press, 2005.

Hubel and Torsten N. Wiesel. In 1981 they were jointly awarded ½ of a Nobel Prize for their discoveries concerning the "visual system".

Hubel and Wiesel demonstrated that. . .the visual cortex's analysis of the coded message from the retina proceeds as if certain cells read the simple letters in the message and compile them into syllables that are subsequently read by other cells, which, in turn, compile the syllables into words, and these are finally read by other cells that compile words into sentences that are sent to the higher centers in the brain, where the visual impression originates and the memory of the image is stored. . .

That the cells are arranged in a regular manner in columns, . . .Within each such area the information arriving from a correspondingly small region of each eye is analyzed.

. . . the ability of the cells in the visual cortex to interpret the code of the impulse message from the retina is developed directly after birth. . . (excerpted from [www.nobelprize.org](http://www.nobelprize.org))

That's a great work but it still did not deal with many aspects of visual processing which I alone, just like how Einstein interpreted others' work on photo-electricity, did to make final senses out of total visual processing.<sup>8</sup> Depending on circumstances, therefore, another Nobel Prize would have been given for me for this overall visual processing with or without my work overthrowing and replacing the Young-Helmholtz trichromatic color vision hypothesis(infra).

22 August 2005:

### 3) **Colour vision**

Young and Helmholtz were made known to the whole world by their trichromatic color vision hypothesis. The significance and importance of color vision mechanisms therefore has been at the very top of the biological science. Now, once I can come in to overthrow and replace the Young-

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<sup>8</sup>KC Cheng, The Electromagnetism of Memory, Intelligence and Mind. A video set (132 hours). Toronto: KC Cheng Press,1999.

KC Cheng, **Volition**, 2002.

KC Cheng, N Lecture 2000: Colour Perception. A video. 2<sup>nd</sup> ed., Toronto: KC Cheng Press, 2005.

Helmholtz trichromatic color vision hypothesis,<sup>9</sup> this work of mine becomes as important as their hypothesis before, and certainly much more important than their hypothesis after, being overthrown by me. Naturally, because I could conclusively overthrow their hypothesis, in this part of our discoveries, I prove to be a greater scientist than both Young and Helmholtz combined.

Given the extreme significance and importance of color vision mechanisms accorded by the academic world; had Young and Helmholtz been scientists of the 20<sup>th</sup>-century and had the Nobel Prize Committee followed the popular trend to wrongly consider their hypothesis correct, undoubtedly a Nobel Prize would have been given to them for their color hypothesis. Today, when my color theory has conclusively proved them wrong and replaced their hypothesis with mine, should I be not given a Nobel Prize for this work? Of course! Otherwise, why is it that if someone else invents the same thing as I have he/she would be given a Nobel Prize, and yet when it's invented by me, I get no Nobel Prize at all? Does it not mean that the Nobel Prize Committee has something against me? Why? Is it because my last name is not either Young or Helmholtz?

So, to demonstrated that I deserves a single Nobel Prize just for overthrowing and replacing the Young-Helmholtz trichromatic color vision hypothesis, the preceding comparison with Young and Helmholtz suffices. We no longer need to reach into the following precedent (the case of Richard Axel and Linda Buck) to illustrate that my colour vision theory all by itself deserves a single Nobel Prize. However, the Axel and Buck case helps to further illustrate the principles involved.

The 2004 Noble Prize for physiology/medicine was awarded to Richard Axel and Linda Buck:

We can perceive no less than 10,000 different smells. Although many important details of the design of the sense of smell were known, before Richard Axel and Linda Buck, the basic mode of operation of the sense of smell was not understood. They showed that no less than 3% of the genes were coding for olfactory receptors – docking stations for different odorants, . . . large molecules located in the cell membrane of the olfactory cells to react to different odorants. By these genes are synthesized around 1000 different types of docking stations, each of which responds to only a few odorants. Each type of olfactory cell only expresses a single type of docking station in its cell membrane. In the mouse there are thus 1000 different types of olfactory receptor cells. The number in humans may be as little as 350 types of sensors (olfactory receptor cells).

Each characteristic scent is, as a rule, a mix of odorant molecules that activates a combination of different types of receptor cells that send their signal via the olfactory bulb to the olfactory cortex. The specific combinatorial code that reaches the cortex makes us perceive a given odorant. Axel and Buck have unravelled the enigma of our ability to discern so many different scents.(excerpted from [www.nobelprize.org](http://www.nobelprize.org))

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<sup>9</sup>KC Cheng, The Electromagnetism of Memory, Intelligence and Mind. A video set (132 hours). Toronto: KC Cheng Press,1999.

KC Cheng, **Volition**, 2002.

KC Cheng, N Lecture 2000: Colour Perception. A video. 2<sup>nd</sup> ed., Toronto: KC Cheng Press, 2005.

By this Axel and Buck case, once more it is shown that a Nobel Prize is given to those having made discoveries in just one discrete part of the whole nervous system, and not on the whole nervous system as I did in my work on memory (See under (1) in the above). They confined their work to only the olfactory system. Hence, my color vision theory with or without the whole visual processing processes ( under (2) in the above) could have been given once single Nobel Prize. It's whether the committee wants to give to me, not that my work is too restricted to just one part of the nervous system to deserve a Nobel Prize.

In a related aspect, long ago when I was proving memory being electromagnetic particles, I also dealt with how olfactory memories, that is, the memory of our past odours being sensed, are preserved. Only when the specific electromagnetic particles arising from the interaction between the odour molecules and olfactory receptor cells have been specifically transmitted into the cortical neurons would odour sensation occur and the corresponding memory registered into the brain.<sup>10</sup>

Axel and Buck established the genetic foundation of odour sensing. But there's another side to olfaction. Actually there's a genetic foundation for almost every sensation we can experience. Only because specific genes have directed the synthesis of our brain neurons have the latter possessed the necessary properties to sense various types of stimuli from vision, hearing, touch, pressure, to smelling and tasting. However, without the necessary external stimuli our brains would have never been able to sense anything whatsoever.

The determinative importance of external stimuli in causing sensation is readily illustrated also in olfaction. If only the sensors themselves specifically specify one type of odour each, we would be able to discriminate only 350 odours. Why in the case of humans when we have only 350 types of sensors can we perceive no less than 10,000 different smells? The answer lies in the basic mechanisms that through activation of only one or simultaneously several of the 350 types of sensors at a time by one or several of the *available* odorant molecules (i.e., if only one odorant now stimulates the olfactory system, just one odorant would be activating one or several types of the olfactory sensors to evoke one smell; but if several odorants at a time are present, they would activate one or several types of the olfactory sensors to evoke another smell), the *available* odorants both natural and synthetic<sup>11</sup> could so generate in our brains a total of more than 10,000 smells (see *compound sensing* below). The types and strength, or the combination of the types and strength, of different odorant molecules almost exclusively determine what smells we experience. Nature has given us that capacity. The genes have given us 350 types of sensors, but it is how many types of natural and synthetic odorant molecules we can gather that determines how many different odours we

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<sup>10</sup>KC Cheng, The Electromagnetism of Memory, Mentation and Behaviour.  
Volume 1. Unpublished manuscript. Winnipeg, Canada: KC Cheng Press, 1976.

<sup>11</sup>Therefore, the more odorants we have or synthesize, the more types of smells we can experience.

can detect. This is the same as being able to see different colors is not entirely gene-determined. Just like what Axel and Buck did to establish the genetic foundation of odour detection, others can also locate the specific genes and brain neuron sensitive sites (or receptor sites) for color sensing. However, once these neuronal structures and properties exist, it is how many visible color rays that are entering into our eyes that determines what colors we now see. This applies to all other sensory systems. Just like the olfactory system, however, perception in the gustatory system can be greatly altered by prevailing chemicals or even physical stimuli. An odour can be masked by another, indicating the importance of the odorant molecules in determining the smells experienced by us. These chemical reactions can occur outside of our body or inside our nervous system. So, one food can give me a taste, and while I still have that taste in my mouth, I could taste another food which would have tasted differently had it been tasted right after washing my mouth.

Also involved is the concept of compound sensing. If an odorant molecule R activates olfactory receptor cell types 1 and 2, it would evoke a smell different from the one being generated by odorant molecule S which activates olfactory receptor cell types 1 and 5. That is because R and S differ in molecular structure and energy. As a result, they activate different cell types to generate different combinations of electromagnetic particles to be transmitted into the brain. When R activates cell types in 1 and 2, and S activates cell types 1 and 5; even if the electromagnetic particles generated from cell type 1 are of the same frequency when activated by either R or S, the electromagnetic particles generated from cell type 2 would be expected to differ in frequency from those generated in cell type 5. When  $R = 1+2$ , and  $S=1+5$ , and  $2 \neq 5$ ,  $R \neq S$ . When stimulated by R the brain then senses a smell different from that it experiences when stimulated by S. R's smell and S's smell are both compound sensation, adding up more than one simple sensation together for the brain to sense a summed up or compound sensation.<sup>12</sup> By this mechanism of combining different simple sensations, countless numbers of odorant molecule both natural and synthetic can evoke in our brain more than 10,000 smells even though we have only 350 types of sensors. It is expected that if there are more types of sensors, our detection would become even finer and more complex. That's because the more types of sensors there are, the more likely our olfactory bulb would be sensitive to or be activated by more types of chemicals or chemical energy levels.

The above has been made necessary for me to illustrate how deep or how extensive a discovery has to be to win a Nobel Prize: Axel and Buck had to deal with only the genetic aspect of olfaction, nothing in any comprehensive manner beyond that.

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<sup>12</sup>KC Cheng, Emotions: a Cortical Repertoire, 2003, 2004, incomplete.

KC Cheng, N Lecture 2000: Colour Perception. A video. 2<sup>nd</sup> ed., Toronto: KC Cheng Press, 2005.

Measured by that standard, my preceding conclusions on how many Nobel Prizes I should have been given are well justified.

### Conclusions for Part B

As a whole, based on precedents of some of the best and some of the lesser known Nobel Laureates, it's amply and solidly proven that my January 16, 2004 letter's claims are well-founded. Indeed, when actually I could/should have already won 3~4 Nobel Prizes (Table 3), my January 16, 2004 letter was a rather tame one: **“One Nobel Prize could have been given for discovering and confirming that memory is the intaking, storage and retrieval of electromagnetic particles . . . . Another . . . for my establishing the mechanisms for vision and color vision. . .”**

Table 3. The approximate number of Nobel Prizes Cheng could/should have already won

My (Cheng's) memory theory	equivalent to	
memory being electromagnetic particles (eMs)	Mme Curie's identifying polonium and radium; Planck's $E=h\nu$ , or his founding the quantum physics (Table 2)	1 Nobel Prize
memory eMs giving rise to various mental and neuromusculo-skeletal functions	Mme Curie's determining the properties of radium and isolation of radium in its pure metallic state	1 Nobel Prize
Total visual processing	See (2) in the text	½ to 1 Nobel Prize
overthrowing and replacing the Young-Helmholtz trichromatic color vision hypothesis	See (3) in the text	½ to 1 Nobel Prize
Total number of Nobel Prizes Cheng could/should have been given so far for his completed works	3~4 Nobel Prizes	

Neither was I defiant to tell the truth in my September 7, 2004 letter “as in the past, my research is not funded by either any salary or additional grants . . . Therefore, I can no longer promise as to when I could send you a copy of finally completed work on *Emotions, a Cortical Repertoire*.”

Nor was I unreasonable for me to state in my 1) January 16, 2004 letter:

“ . . . we must consider the prospect of awarding a separate Nobel Prize for *emotions*. Why? Because when I have already exceeded requirements for one single Nobel Prize, a prize should have been given to me already. To deny me a Nobel Prize simply because I could not or have not done what is unnecessary to win one is manifestly unfair.”

and in my 2) June 24, 2004 letter: “ It does not appear that I could get it (*Emotions, a Cortical Repertoire*) included in this Nobel Prize. If it’s good enough for inclusion or mentioning by the Nobel Prize system, I am sure there are alternative ways to do it.”

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