

## Case Series

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# Case reports of bosonic pair annihilation on graphene by NaCl + KCl solution

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### Abstract

The peak at the binding energy of about 285 eV corresponds to the  $sp_2$  carbon atoms in graphene monolayer. About 100 eV is needed to make a pair production of boson particles. Therefore, graphene exfoliator, NaCl + KCl solution can use to make a pair annihilation of boson particles. Fermion needs lesser Fermi energy to make a pair production or a pair annihilation by dopped colloid gold. Colloid gold with camostat mesilate powder can disappear the tumor mass by the pair annihilation and inhibiting the chromatin remodelling. Combination of NaCl + KCl solution and colloid gold with camostat mesilate powder can induce the quantum entanglement to re-appear the disease.

### Introduction

The electronic structure of epitaxial graphene is two dimensional by nature. It is a zero-gap semiconductor, i.e., a semimetal, with a conically shaped valence and conduction band reminiscent of relativistic Dirac cones for massless particles [1]. The hole doping in the conical band structure of epitaxial graphene monolayers can be achieved by the adsorption of gold. In the case of this doping, the Dirac point is shifted into the unoccupied states (Figure 2).

Quantum superposition is a fundamental principle of quantum mechanics that states that linear combinations of solutions to the Schrödinger equation are also solutions of the Schrödinger equation. This follows from the fact that the Schrödinger equation is a linear differential equation in time and position. The theory of quantum mechanics postulates that a wave equation completely determines the state of a quantum system at all times. If current tumor grading and staging system can be converted into this superposition concept, we can choose the treatment modalities and predict the prognosis more precisely [2].

### Literature review

This paper is a review of the literature on theranostic effect of graphene based NaCl + KCl solution on cancer patients. We conducted a complete review of the available English literature, charting all reported cases and examining the treatment to outcome data.

### Case reviews

**Case 1:** A 73-year-old elderly female patient presented with progressive dysphagia for more than 1 month with an Eastern Cooperative Oncology Group (ECOG) score of 1. After completing gastroscopy + pathological biopsy, chest enhanced CT, barium esophageal meal, PET-CT, and other related examinations, the clinical diagnosis was thoracic segmental esophageal poorly differentiated squamous carcinoma cT2N2M0 stage III. On February 16, 2023, and March 9, 2023, and 500 mL normal saline with 5cc KCl solution was injected for 6 hours intravenously. After the injection, the patient underwent an imaging examination. The chest enhanced CT suggested that the lesion range was significantly reduced compared with the previous scan, and mediastinal lymph nodes were partially reduced [3].

**Case 2:** A 34-year-old male patient with no significant medical history presented to a tertiary medical institution with generalized seizures. After management with anti-seizure medication, a neurological examination revealed no additional focal deficits. Brain MRI performed at the initial hospital showed an approximately 8 cm diffuse, infiltrative, non-enhancing mass lesion in the left temporal lobe. Based on clinical presentation and imaging features, a tentative diagnosis of low-grade glioma was made. Operation was done. The final pathology results revealed an isocitrate dehydrogenase (IDH)-mutant, CNS WHO grade 2 astrocytoma according to the 2021 classification system. 1 year after surgery, a brain MRI revealed an approximately 2 cm

round, solid, enhancing mass in the left insular region, with perilesional T2 high signal intensity. Homogenous diffusion restriction with a mild increase in cerebral blood volume suggested tumor recurrence with high-grade transformation. The second operation was done. The final pathology results revealed an IDH-mutant, CNS WHO grade 4 astrocytoma according to the 2021 classification system. 4 days after surgery, he developed sudden right-side weakness and numbness, and right homonymous hemianopsia. Radiation therapy was not recommended and normal saline with KCl solution was injected. The patient recovered from the hemiparesis completely [4].

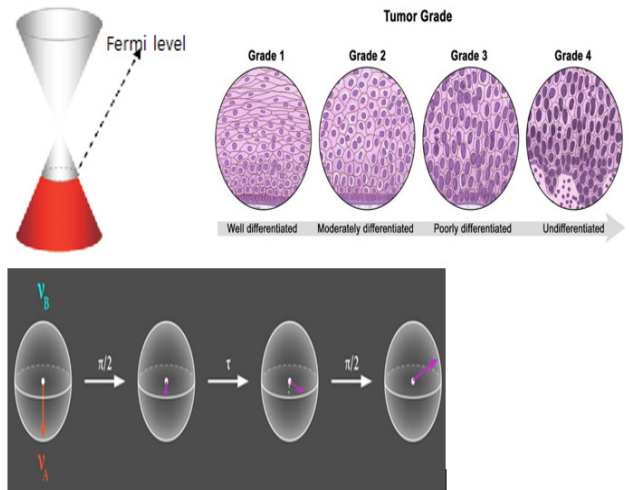
**Case 3:** A 27-year-old male patient, with a known history of Hodgkin lymphoma (HL), presented with gait disturbance. A brief summary of his HL history is as follows. Three years ago, he presented with persistent high fever and weight loss. Imaging revealed systemic lymphadenopathies in the axillary, neck, and mediastinal regions, as well as multifocal osseous lesions. A diagnostic biopsy from a cervical lymph node, coupled with a bone marrow assessment, confirmed a diagnosis of classic HL, lymphocyte-rich variant, at stage IV XB with documented bone marrow involvement. He received the NaCl + KCl solution intravenously, which successfully led to the absence of disease in the bone marrow and achieving a metabolic complete response [5].

**Case 4:** A 50-year-old adult patient with multiple brain and lung metastases (initially diagnosed as FIGO2018 stage IIA1) reported cough 2 years after postoperative chemoradiotherapy in Dec, 2022. Computed tomography (CT) of the thorax revealed multiple spaces occupying both lungs. The largest one was in the right lower lobe and measured 4 × 6 cm. A needle biopsy revealed squamous cell carcinoma with P16+ which supported the diagnosis of metastasis from multiple brain and lung metastases. No genetic, family, or psychosocial history were reported. She received the NaCl + KCl solution intravenously. After the injection, Magnetic resonance imaging (MRI) of the brain revealed a single, well-circumscribed peripheral-enhancing lesion measuring 3.6 × 2.5 cm within the left supratentorial lobe with surrounding vasogenic edema in Feb 2023 [6].

**Case 5:** A aged 34 with no particular pathological history, presented for one year with diabetes insipidus associated with a decrease in visual acuity evolving in a context of conservation of general condition. Cerebral MRI revealed a nodular lesion in the pineal region measuring 12.2 x 10.8 x 9.3 mm, associated with thickening of the pituitary stem suggestive of a germinoma. The patient underwent the NaCl + KCl solution intravenously, with a complete response on followup imaging [7].

### Discussion

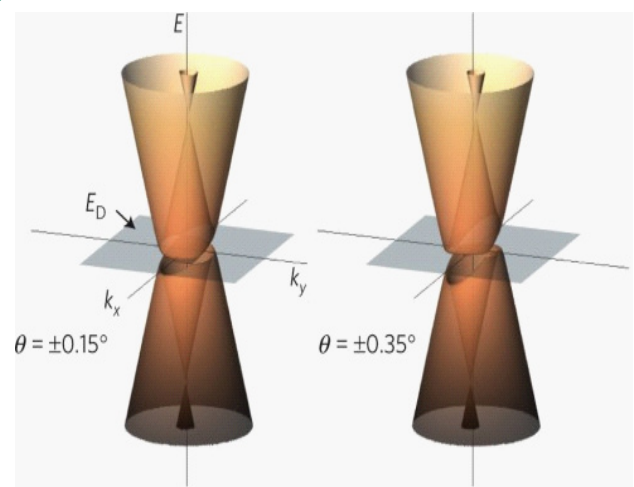
Superposition is the ability of a quantum system to be in multiple states at the same time until it is measured. The Bardeen–Cooper–Schrieffer (BCS) ground state is a superposition of different numbers of Cooper-paired electrons, not a superposition of different numbers of total electrons. The unpaired electrons are still there in the material, just not paired. To be consistent with spin statistics theorem, the wave function of the system must be antisymmetrized for fermions and symmetrized for bosons [8]. As a result of this symmetrization and antisymmetrization, it is indeed true that the expected value of the distance between particles is increased for fermions and reduced for bosons. The particles are indistinguishable, not only



**Figure 1:** Fermi level of epitaxial graphene doped by colloid gold. Fermi energy level moves to the valance band from the Dirac point. The example concept of the superposition (probability) is represented as a replacement to tumor grading and staging.

Superposition of tumor grading:

- Grade1: 1-5 times of atypical cell is found from 20 biopsy samples.
- Grade2: 5-10 times atypical cell is found from 20 biopsy samples.
- Grade3: 10-15 times atypical cell is found from 20 biopsy samples.
- Grade4: 15-20 times atypical cell is found from 20 biopsy samples.



**Figure 2:** Charge carriers in bilayer graphene are widely believed to be massive Dirac fermions that have a bandgap tunable by a transverse electric field. The low-energy electronic structure of bilayer graphene is widely held to be unstable towards symmetry breaking either by structural distortions, such as twist, strain or electronic interactions that can lead to various ground states.

in their intrinsic properties, but are also sufficiently close for their wave function to overlap.

Remained massive or massless fermion superposition [9], which was not removed by the bosonic pair annihilation is seen on follow Computed Tomogram (CT) and Magnetic Resonance Image (MRI) or Positron Emission Tomogram (PET) scan. These remnants can be disappeared by colloid gold with camotstat powder intake 1 month after. The fermion remnant waves are disappeared by colloid gold with camotstat powder.

### Conclusion

Graphene exfoliator, NaCl + KCl solution induce the bosonic

pair annihilation as symmetrized state and colloid gold with camostat powder make the fermionic pair annihilation as asymmetrized state. Therefore, even after the bosonic pair annihilation by NaCl + KCl solution, the massless fermionic superposition can be remained. This fermionic remnant can be removed by colloid gold with camostat powder 1 month after.

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