

**FIZIKA DARSLARINI ELEKTRON KO'RGAZMALAR ORQALI
SUYUQLIKLARDA ELEKTR TOKI MAVZUSI ASOSIDA TASHKIL
ETISH**

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Annotatsiya

Fizika ta'lim jarayonida kompyuter texnologiyalar va elektron ko'rgazmalardan foydalanish o'quvchilarning mavzuni qiziqarli va osonroq tushunishiga imkoniyat yaratadi. Ushbu maqolada fizika darslarida elektron ko'rgazmalardan foydalanishning dolzarbligi ko'rsatib o'tilgan.

**ОРГАНИЗАЦИЯ УРОКОВ ФИЗИКИ ПОСРЕДСТВОМ
ЭЛЕКТРОННЫХ ВЫСТАВОК НА ТЕМУ ЭЛЕКТРИЧЕСКОГО ТОКА
В ЖИДКОСТЯХ**

Аннотация

Использование компьютерных технологий и электронных выставок в процессе обучения физике дает возможность учащимся интереснее и проще понять. В данной статье показана актуальность использования электронных экспонатов на уроках физики.

ORGANIZATION OF PHYSICS LESSONS THROUGH ELECTRONIC EXHIBITIONS BASED ON THE TOPIC OF ELECTRIC IN LIQUIDS

Abstract

The use of computer technologies and electronic exhibitions in the process of physics education provides an opportunity for students to understand the subject in an interesting and easier way. This article shows the relevance of using electronic exhibits in physics classes.

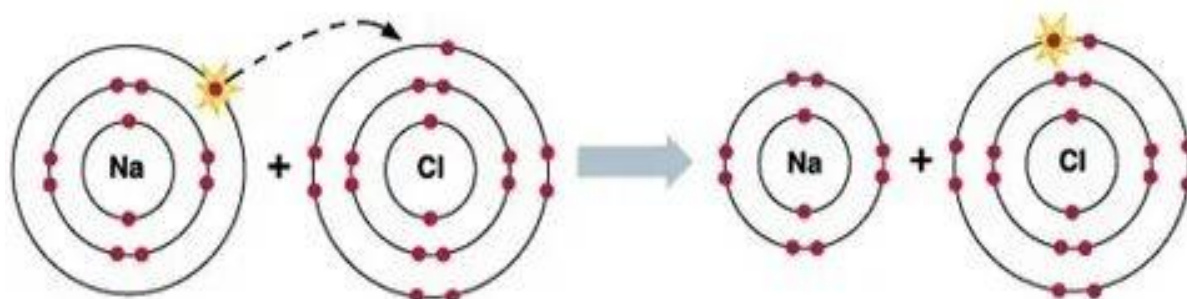
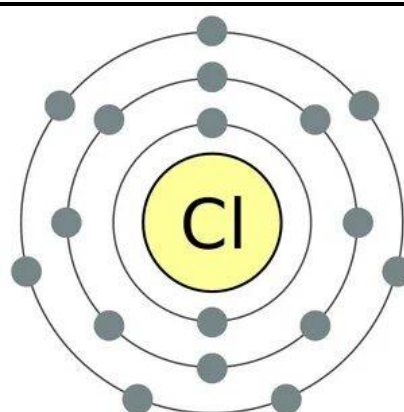
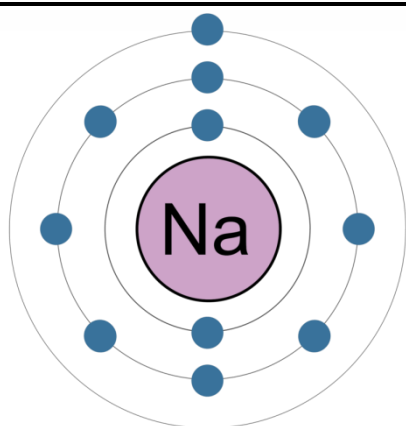
Kirish

Kundan-kunga jadallashib borayotgan texnika asrida, fizika faniga alohida urg'u berishimiz kerak. Fizika fanini o'qitishda elektron qurilmalardan keng miqyosida foydalanish o'quvchilarning bilim va ko'nikmalarini sezilarli darajada oshiradi. Fizik jarayonlarni laboratoriya kuzatishlarisiz tasavvur qilib bo'lmaydi. Barchamizga ma'lumki maktablarda fizika laboratoriya ishlarini bajarish uchun etarli moddiy texnik baza mavjud emas. Bunday holatlarda darslarning sifatini oshirish uchun axborot texnologiyalari taminotlaridan foydalanish maqsadga muvofiq. Bunday ta'minotlarga misol qilib "Physics at school", "Fizika virtual laboratoriyasi", "Fizika ilovasi" kabi dasturlardan foydalanib laboratoriya jarayonida maqsadga muvofiq qo'llashimish mumkin.

O'quvchilarga elektr bo'limini o'qitishda ushbu dasturiy vositalardan foydalanib aniq va oson tushuntirish mumkin. 8-sinf fizika fani o'quv rejasidagi "Suyuqliklarda elektr toki" mavzusini virtual laboratoriyalar orqali mavzu mohiyatini ochib berish mumkin.

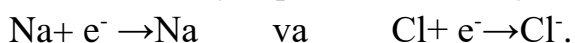
Endi suyuqliklarda elektr tokini qanday zarralar hosil qilishi bilan tanishamiz.

Kimyo darslarida ba'zi moddalarning atom va molekulari orasidagi ion bog'lanish bilan tanishgansiz. Masalan, ion bog'lanishga misol qilib osh tuzi natriy xlorid(NaCl)ni keltirish mumkin. Natriy atomida 11 ta elektron bo'lib, ulardan bittasi tashqi elektron qobiqda bo'ladi. Xlor atomida esa 17 ta elektron bo'lib, ulardan 7 tasi tashqi elektron qobiqda bo'ladi.



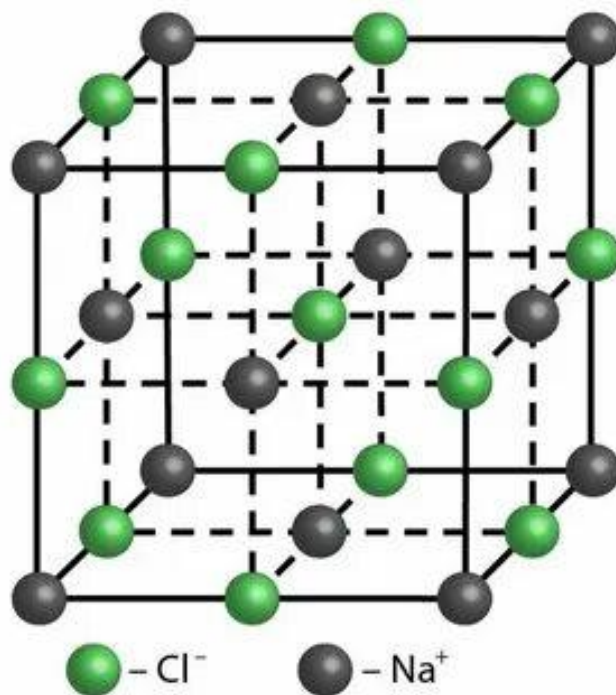
Kimyoviy elementlar davriy sistemasidagi barcha elementlarning alohida olingan atomi elektr jihatdan neytraldir. Chunki, atom yadrosidagi musbat zaryadli protonlar soni qancha bo'lsa yadro atrofida aylanib yurgan manfiy zaryadli elektronlar soni ham shuncha bo'ladi. Shunga ko'ra Na va Cl atomlari alohida olinganda elektr neytraldir.

Xlor atomining tashqi elektron qobig'i to'lishi uchun 1 ta elektron yetishmaydi. Shu sababli xlor va natriy atomlari bir-biriga yaqinlashganda elektronlar almashishi yuz beradi. Xlor atomi natriy atomining tashqi elektron qobig'idan 1 ta elektronni tortib oladi. Natijada xlor atomi manfiy zaryadli xlor ioniga (Cl^-), natriy atomi esa 1 ta elektronini yo'qotib musbat zaryadli natriy ioniga (Na^+) aylanib qoladi:



Turli ishoraga ega bo'lgan natriy va xlor ionlari bir-biri bilan tortishib, NaCl kristall panjarasini hosil qiladi. {rasm}

Ionlar orasida kulon kuchi tufayli vujudga keladigan kimyoviy bog'lanish ion bog'lanish deb ataladi.

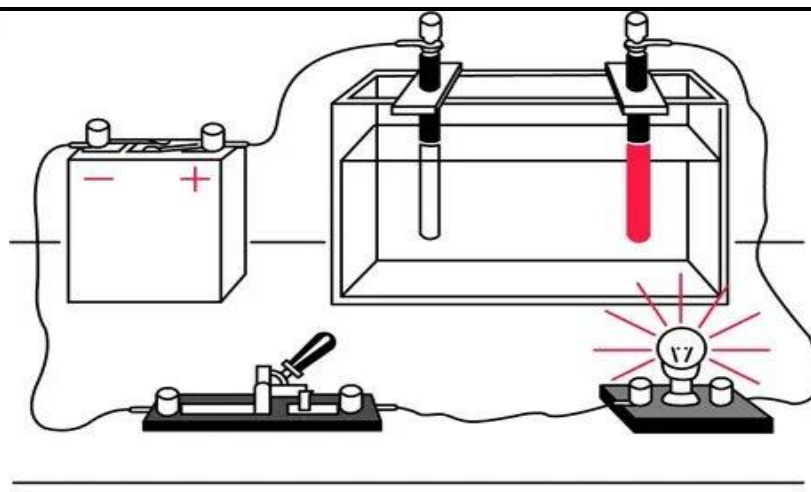


Bazi suyuqliklar elektr tokini o'tkazishi, boshqalari esa o'tkazmasligi mumkin. Suyuqliklarning elektr tokini o'tkazish yoki o'tkazmasligini oddiy tajriba yordamida aniqlash mumkin. Bu tajriba qurulmasi tok manbai, elektr lampochka, shisha idish va unga tushirilgan ikkita ko'mir sterjin –elektrodlar va kalitdan iborat. Elektr manbaining musbat qutbiga ulangan elektrod anod, manfiy qutbga ulangan elektrod esa deb ataladi.

Elektrodli shisha idishga distillangan suv solamiz va kalitni ulaymiz. Bunda lampochka yonmaydi. Demak distillangan suv elektr tokini o'tkazmaydi.

Kalitni uzamiz va idishdagi suvga osh tuzi (NaCl)ni solib, natriy xlorid eritmasini hosil qilamiz. So'ngra kalitni ulasak lampochka yonganini ko'ramiz. Demak, natriy xlorid eritmasi elektr tokini o'tkazar ekan. Bunga sabab nima?

Osh tuzi suvga solinganda, qutublangan suv lekulalari natriy xloridning kristall panjara tugunlarida joylashgan Na va Cl ionlarini o'ziga tortadi. Natijada NaCl kristall panjara yemirilib suvda tartibsiz erkin harakat qiluvchi Na va Cl ioni hosil bo'ladi. kalit ulanganda Na ionlari katod tomon, Cl ionlari esa anod tomon harakatlanadi.



Ko'rinib turibdiki suyuq eritmalarda elektr tokini musbat va manfiy zaryadlangan ionlar hosil qiladi.

Eritmalarda moddalarning musbat va manfiy ionlarga ajralish jarayoni elektrolitik dissotsiatsiya deyiladi.

Shunday moddalar ham borki qattiq holda elektr tokini o'tkazmaydi. Suyuqliklarda ionlarga ajraladigan va shu sababli elektr tokini o'tkazadigan eritmalarga elektrolitlar deyiladi. Elektrolitda elektronlar qancha ko'p bo'lsa, u elektr tokini shuncha yaxshi o'tkazadi. NaCl suvda eriganida ionlarga ajraladi. Natriy xloridning suvdagi eritmasi tokni yaxshi o'tkazuvchi elektrolit hisoblanadi. Boshqa tuzlar, ishqorlar va kislotalarning suvdagi eritmasi ham elektrolitlardir.

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