

№ 3

Умный город.

Метапредметный курс на 2018/19 учебный год

The background features a complex, glowing honeycomb or hexagonal pattern. The cells are outlined in a bright, golden-yellow light, creating a shimmering effect. A prominent, brighter path of light winds through the center of the pattern, suggesting a path or a focal point. The overall color palette is dark, with the golden-yellow light providing a strong contrast.

Сыграем?









A group of people are gathered around a campfire at night. The fire is the central light source, casting a warm glow on the scene. The people are wearing dark clothing, and their faces are partially illuminated by the fire. A yellow rectangular box is overlaid on the center of the image, containing the text.

Модуль 3. Теплоснабжение.
Климат города.



ТЕПЛО





The background is a dense, intricate fractal pattern. It features numerous overlapping circles and spheres in shades of cyan, blue, and orange. Many of these spheres have a grid-like texture on their surfaces, resembling a sphere's latitude and longitude lines. The overall effect is a complex, self-similar geometric structure. A semi-transparent white rectangular box is centered horizontally, containing the title text.

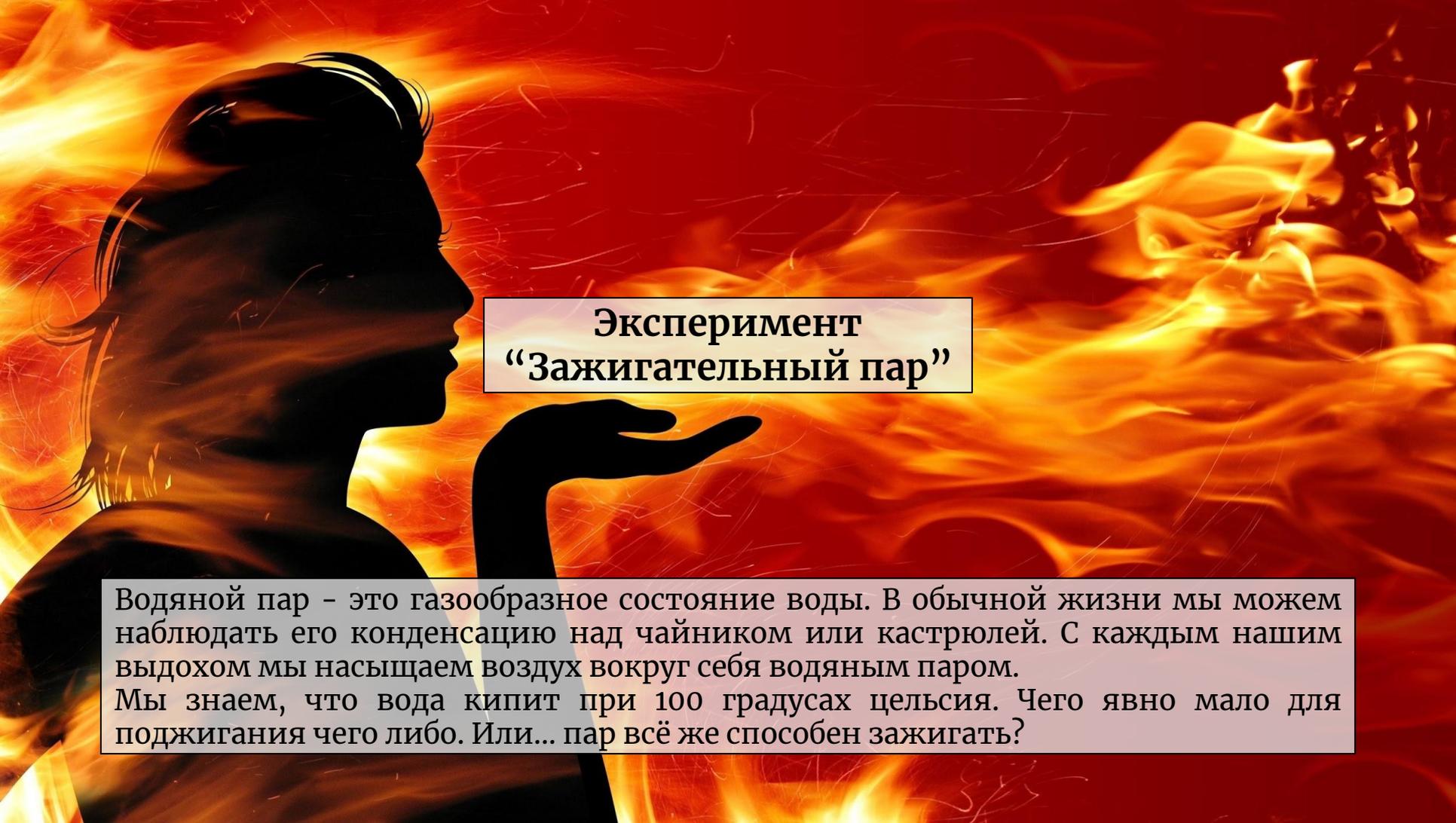
Задача “Угольный танкер”

Задача “Угольный танкер”



Ящик какого объёма нужен, чтобы хранить в нём уголь в количестве m килограмм?

Определите объём кусочка берёзового угля. Рассчитайте плотность. Дайте рекомендации по размеру ящика для 10 кг угля.



Эксперимент “Зажигательный пар”

Водяной пар - это газообразное состояние воды. В обычной жизни мы можем наблюдать его конденсацию над чайником или кастрюлей. С каждым нашим выдохом мы насыщаем воздух вокруг себя водяным паром. Мы знаем, что вода кипит при 100 градусах цельсия. Чего явно мало для поджигания чего либо. Или... пар всё же способен зажигать?

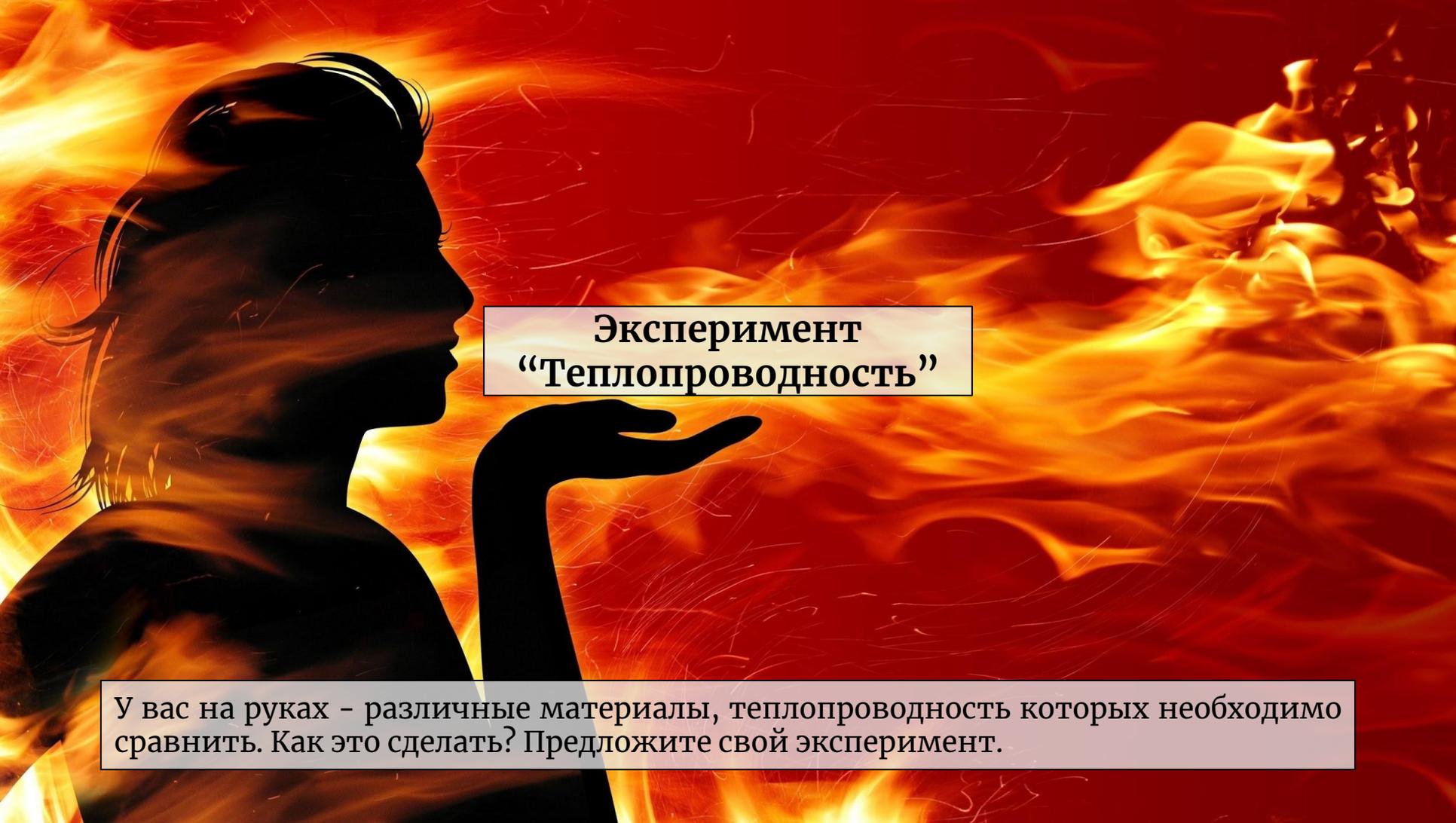


Теоретические изыскания

Способы обогрева домов. Они представлены различными способами и технологиями. Изучите предложенные вам системы обогрева. Выделите рабочий орган, источник энергии, трансмиссию, органы управления.

The background is a dense, intricate fractal pattern. It features numerous overlapping circles and spheres in shades of cyan, blue, and orange. Many of these spheres have a grid-like texture on their surfaces, resembling a sphere's latitude and longitude lines. The overall effect is a complex, self-similar geometric structure. A horizontal yellow banner is centered across the middle of the image, containing the text.

Физические величины

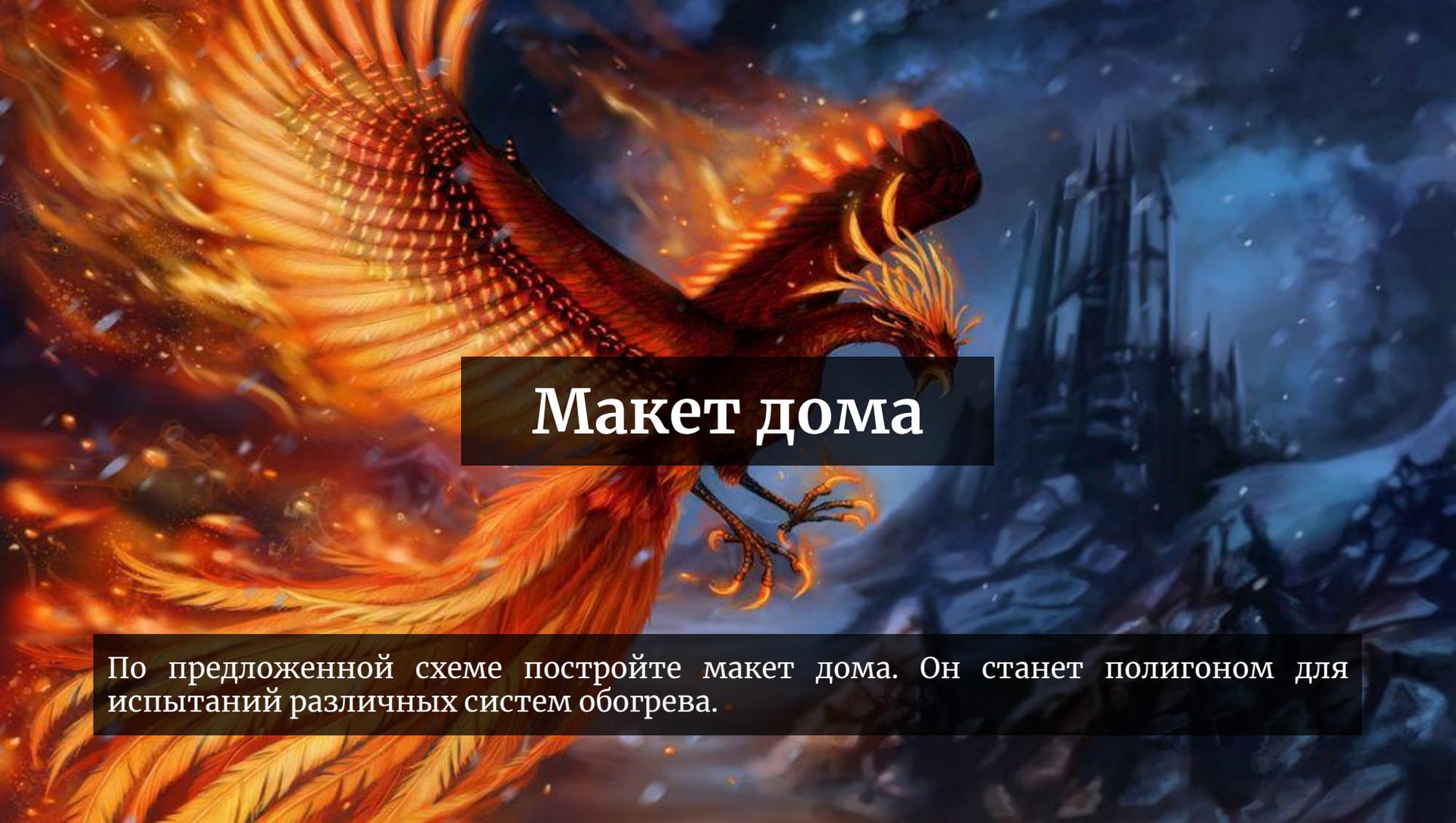
The image features a black silhouette of a woman's head and hand against a vibrant, fiery background of orange and red flames. The woman's head is in profile, facing right, and her hand is held out palm up. A white rectangular box with a black border is positioned in the center, containing the title of the experiment. Another white rectangular box with a black border is at the bottom, containing a question about the experiment.

Эксперимент “Теплопроводность”

У вас на руках – различные материалы, теплопроводность которых необходимо сравнить. Как это сделать? Предложите свой эксперимент.

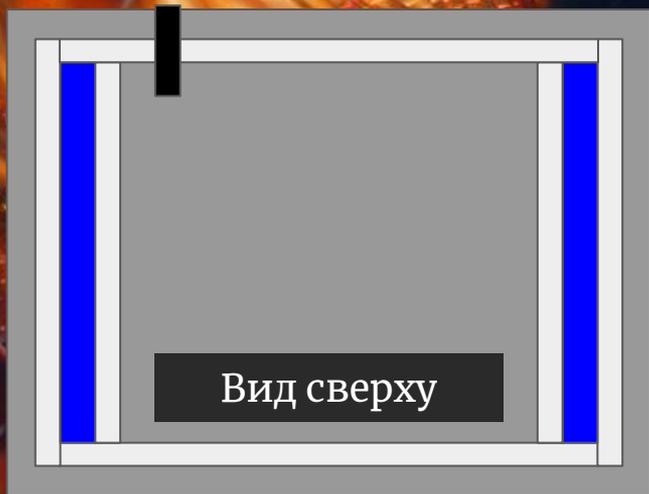
A phoenix, a mythical bird that is reborn from its own ashes, is depicted in a dramatic, fiery scene. The bird is shown in profile, facing right, with its wings spread wide, revealing intricate feather patterns. Its body is engulfed in bright orange and yellow flames, which appear to be rising from its back and tail. The background is a dark, atmospheric landscape with a gothic-style castle or tower in the distance, partially obscured by mist and falling snow or ash. The overall color palette is dominated by the warm tones of the fire and the cool blues and greys of the dark environment.

Конструирование №1

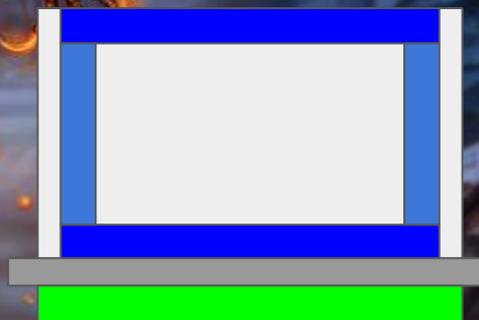
A phoenix, a mythical bird that is reborn from its own ashes, is depicted in the foreground, surrounded by intense orange and yellow flames. The bird is shown in profile, facing right, with its wings partially spread. The background is a dark, blue, and black landscape with jagged, icy structures, suggesting a cold, desolate environment. The overall scene is dramatic and high-contrast.

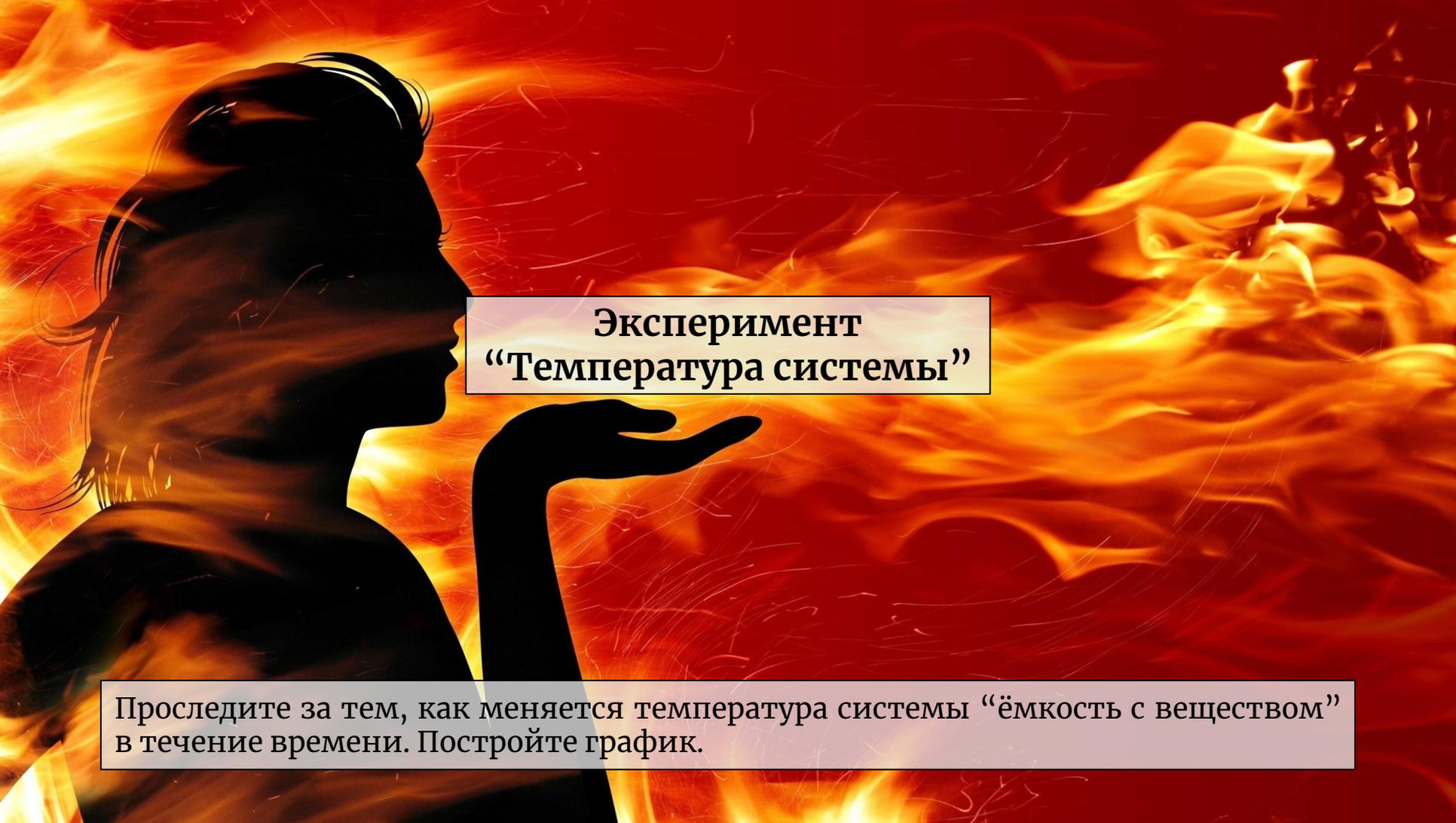
Макет дома

По предложенной схеме постройте макет дома. Он станет полигоном для испытаний различных систем обогрева.



Стена (разрез)



The background of the slide is a vibrant, abstract image of fire in shades of orange, red, and yellow. On the left side, there is a black silhouette of a woman's head and shoulder in profile, facing right. Her right hand is raised, palm up, as if holding something. A white rectangular box with a thin black border is positioned in the center, containing the title text.

Эксперимент “Температура системы”

Проследите за тем, как меняется температура системы “ёмкость с веществом” в течение времени. Постройте график.



Задача “Покосившиеся стены”

Задача “Покосившаяся стена”



Музей искусств и ремёсел в Париже

Как выправить покосившиеся стены?

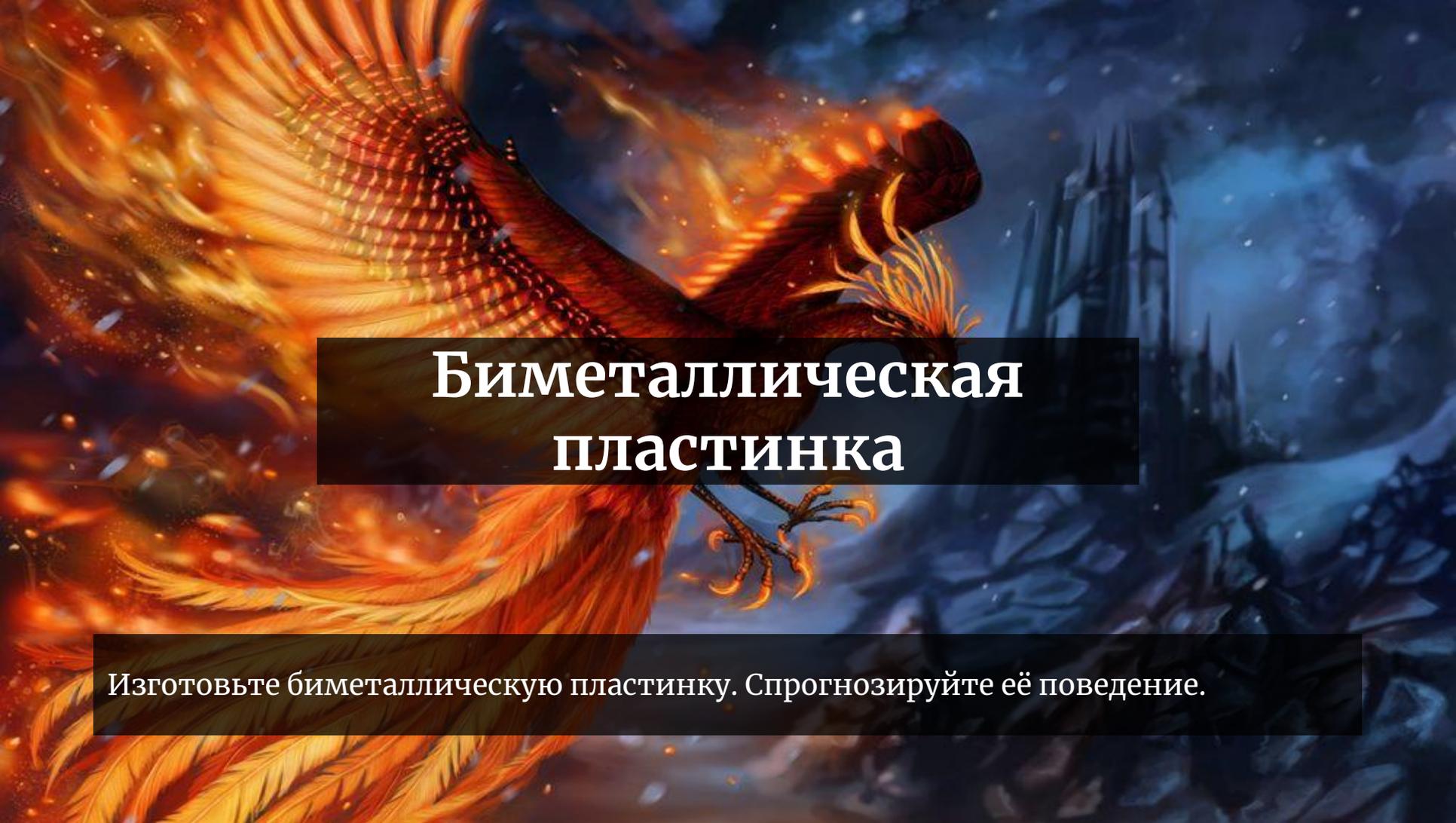


Задача “Тепловое расширение”

Рассчитайте, насколько изменяется высота опор ЛЭП в зависимости от времени года. А насколько изменяется длина проводов?

A phoenix, a mythical bird that is reborn from its own ashes, is depicted in a dramatic scene. The phoenix is shown in profile, facing right, with its wings spread wide. Its feathers are a vibrant, fiery orange and yellow, glowing with an intense light. The bird's head is turned slightly, and its beak is pointed. The background is a dark, blue, and black landscape, possibly a frozen or desolate world, with jagged, icy structures and a cloudy sky. The overall atmosphere is one of rebirth and power.

Конструирование №2

A phoenix, a mythical bird that is reborn from its own flames, is depicted in the center of the image. Its feathers are a vibrant mix of orange, red, and yellow, with a shimmering, iridescent quality. The bird is shown in profile, facing right, with its wings partially spread. The background is a dark, stormy sky with swirling clouds and a faint silhouette of a castle or fortress with spires. The overall atmosphere is dramatic and intense.

Биметаллическая пластинка

Изготовьте биметаллическую пластинку. Спрогнозируйте её поведение.

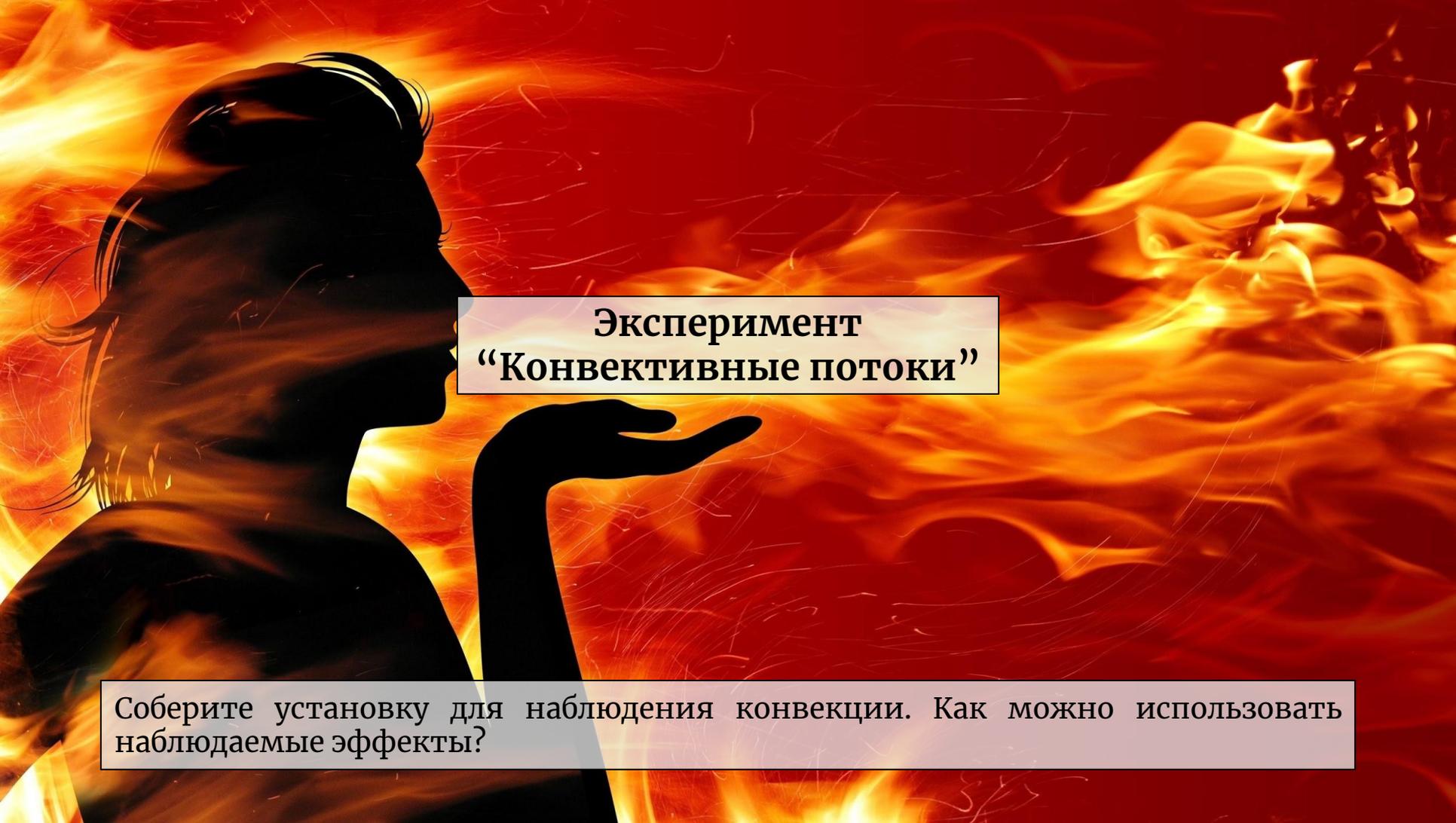
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Закріпки

Отверстия $d=3,5$ мм



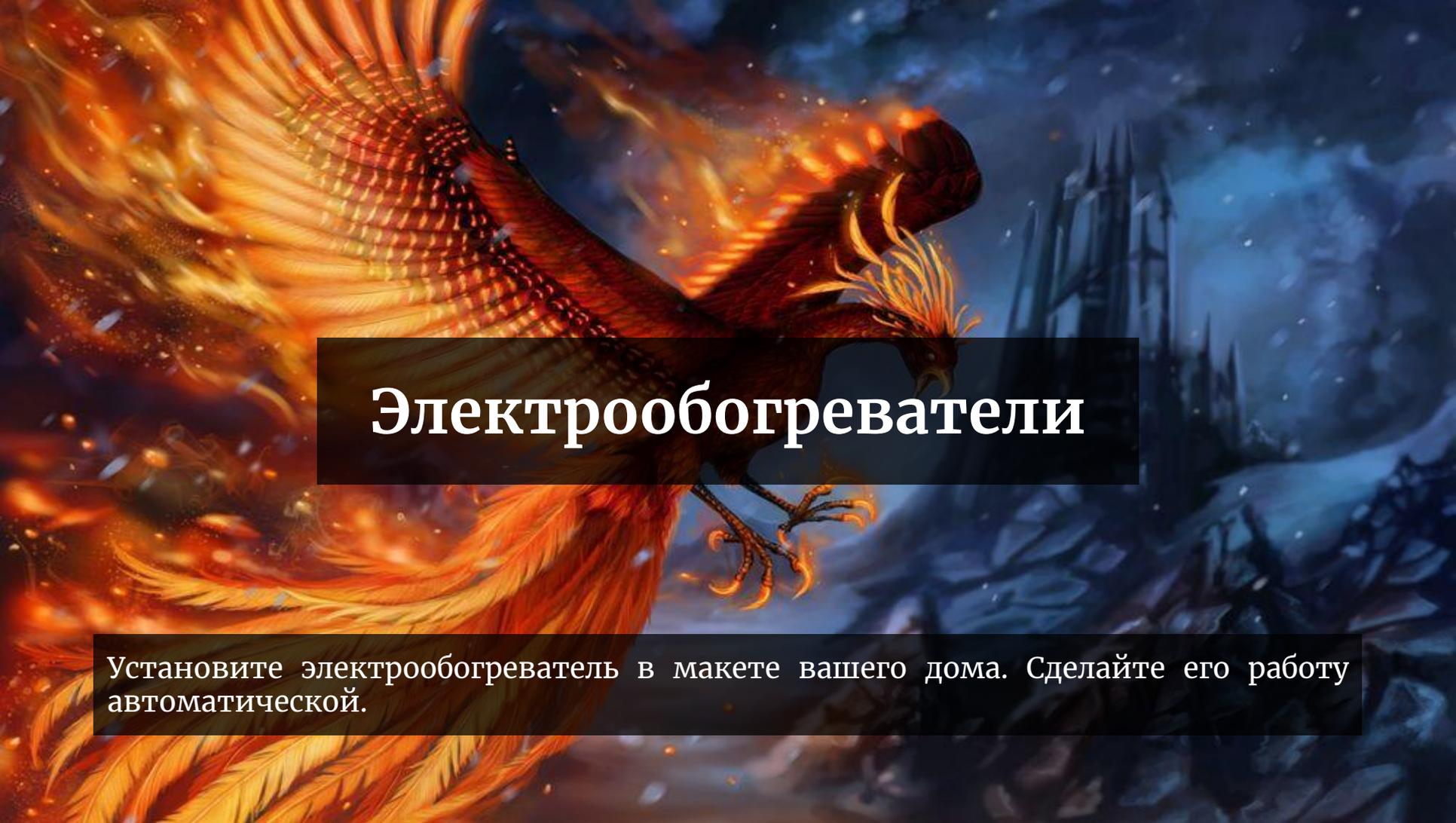
The background of the slide is a vibrant, abstract image of flames in shades of orange, red, and yellow. On the left side, there is a black silhouette of a woman's head and neck in profile, facing right. Her hand is raised, palm up, as if holding something. The overall composition suggests a connection between the human element and the fire, likely related to the experiment's theme of convection.

Эксперимент “Конвективные потоки”

Соберите установку для наблюдения конвекции. Как можно использовать наблюдаемые эффекты?

A phoenix, a mythical bird that is reborn from its own ashes, is depicted in a dramatic scene. The phoenix is shown in profile, facing right, with its wings spread wide. Its feathers are a vibrant, glowing orange and yellow, appearing to be made of fire. The bird's head is turned slightly towards the viewer, and its beak is pointed. The background is a dark, blue, and black landscape, possibly a frozen or desolate world, with jagged, icy structures and a cloudy sky. The overall atmosphere is one of rebirth and power.

Конструирование №3

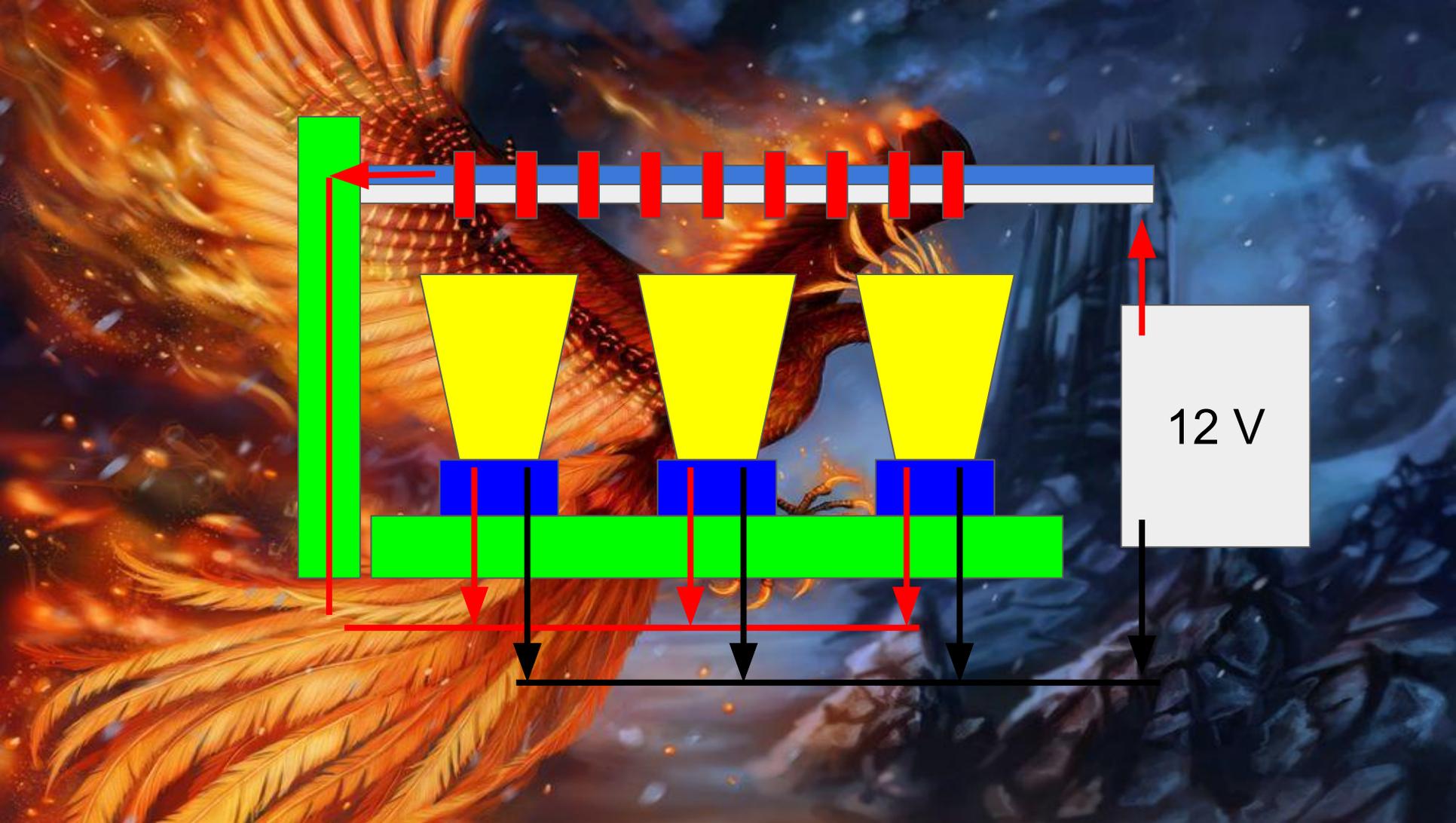
A phoenix, a mythical bird that is reborn from its own ashes, is depicted in the center of the image. Its body is composed of bright orange and yellow flames, with its wings spread wide, showing intricate feather patterns. The phoenix is set against a dark, stormy sky with swirling clouds and a silhouette of a castle or fortress in the background. The overall atmosphere is dramatic and intense.

Электрообогреватели

Установите электрообогреватель в макете вашего дома. Сделайте его работу автоматической.

Лампы 12 вольт на дощечке







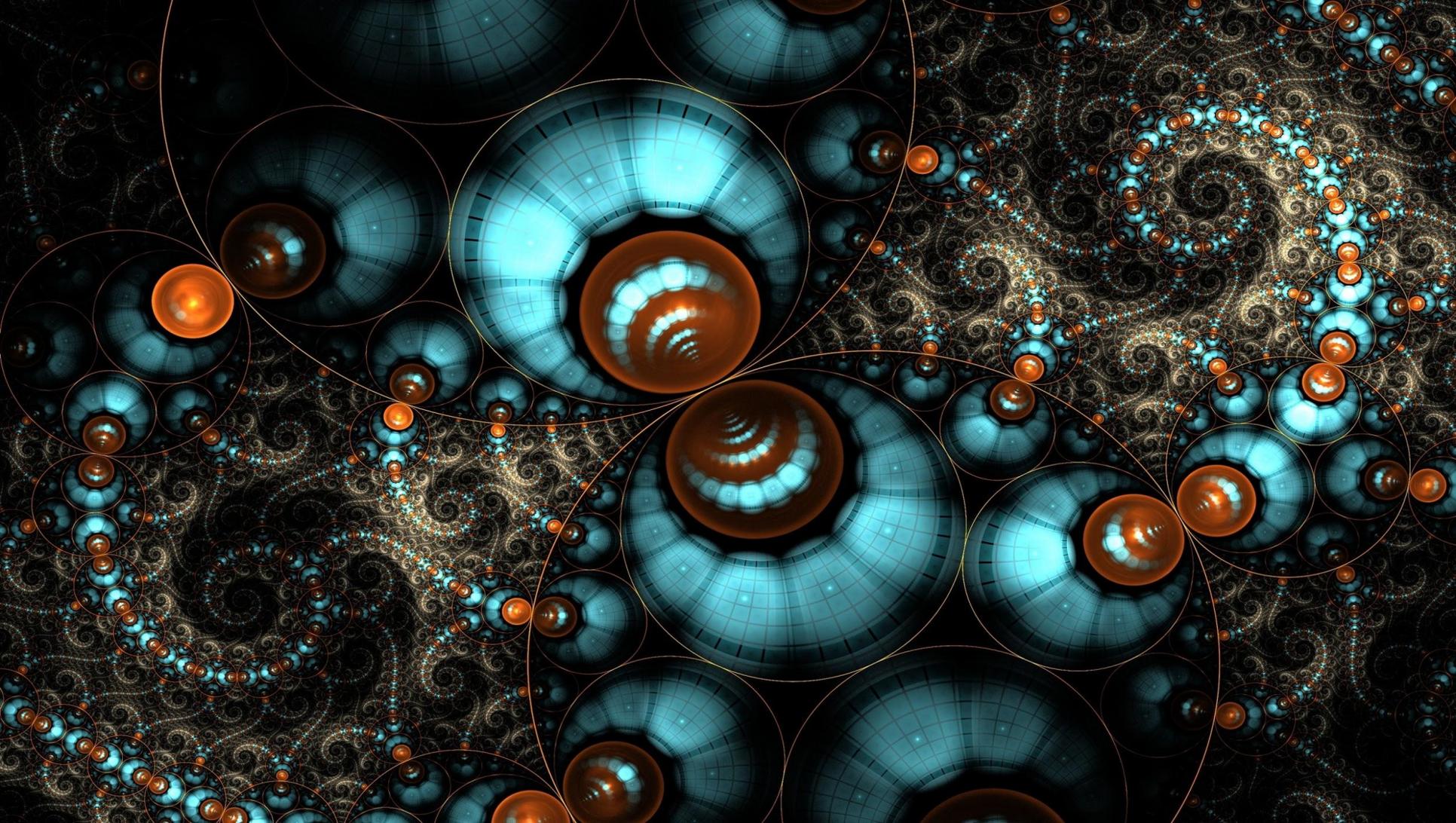
Задача “Расчет изгиба”

Рассчитайте величину изгиба биметаллической пластинки в зависимости от изменения температуры.

A group of people are gathered around a campfire at night. The scene is dimly lit, with the primary light source being the fire. Several hands are visible, reaching towards the fire for warmth. A yellow rectangular box is superimposed over the center of the image, containing the text "Конец." in a black serif font.

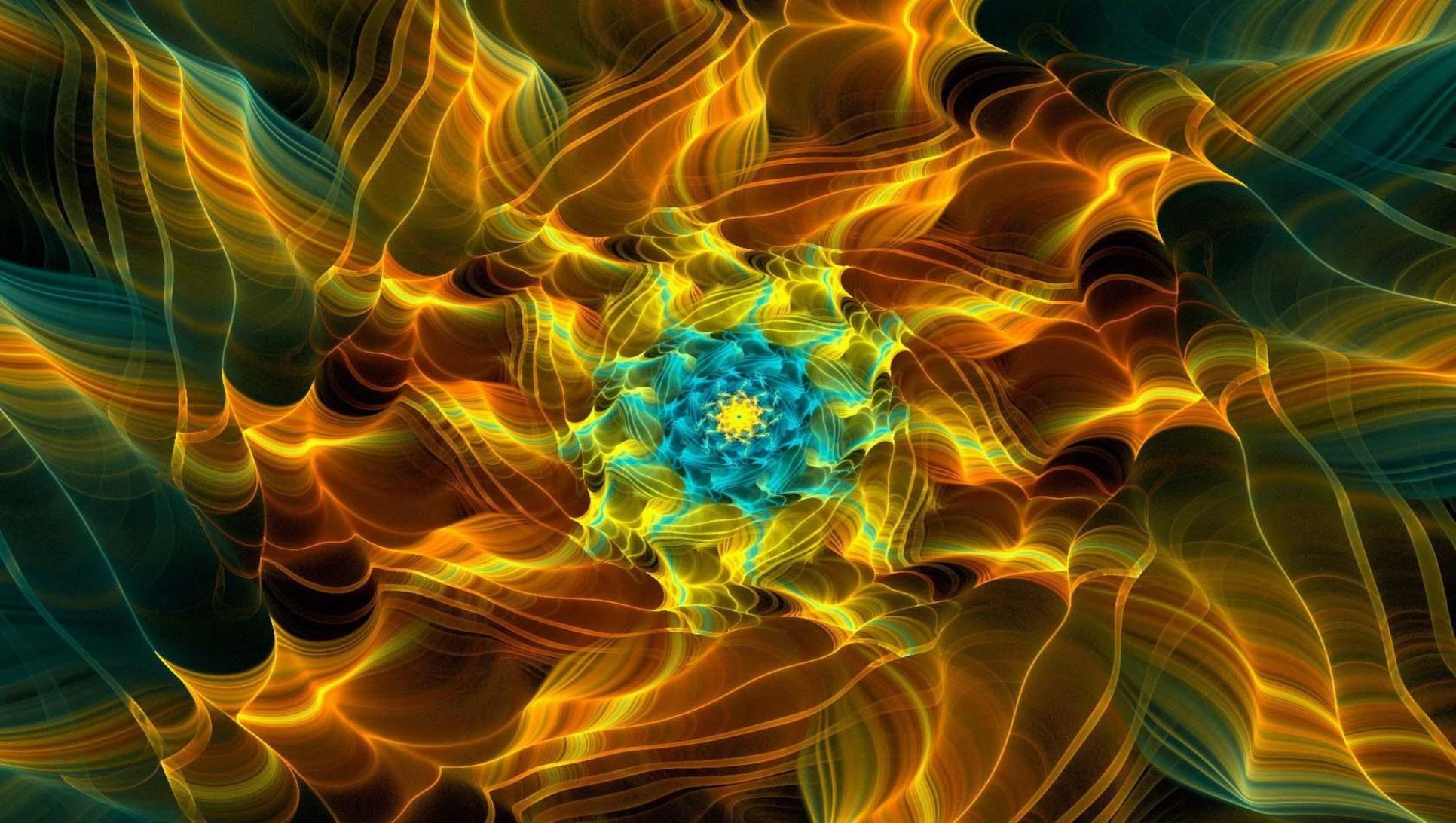
Конец.



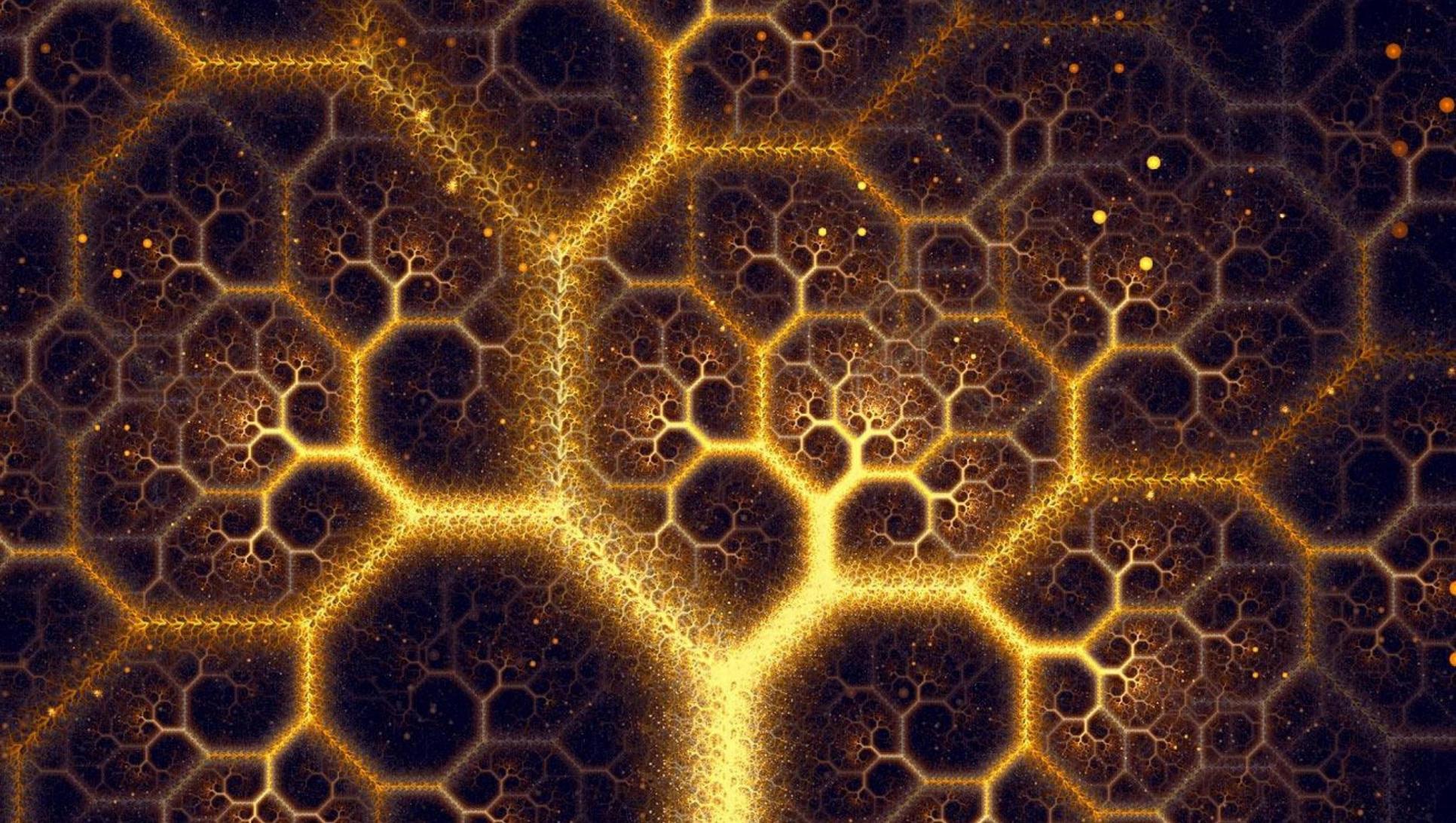




Taylor





















агрегатные состояния топлива

Диффузия

Смеси

Принцип работы батарей

Плотность (на примере угля, нефти, воды)

Фазовые переходы. В физитке ии технике. Эволюция по ТРИЗ

Холод и Тепло, кристаллизация.

Изготовление теплого пола, кресла с подогревом.

Отопительные приборы.

Фазовый переход - тьермостатирование на примере парафина.

Понятие Тяги, Анизотропия свойств, Теплопроводность

Продукт - свеча, как источник тепла.

Определение объёма угля.

Макет дома обогрев. Свечой и лампой. влияние цвета стен на обогрев.