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2008

### Chemistry

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## “Chemistry” Treatment

<b>Working Title:</b>	Chemistry	<b>Start Date:</b>	May 14, 2007
<b>Producer:</b>	Hiroki Sato	<b>End Date:</b>	February 22, 2008
<b>Advisor:</b>	Prof. Nancy Beiman	<b>Running Time:</b>	Five minutes
<b>Budget:</b>	\$134	<b>Release Format:</b>	DV / DVD

### **Abstract**

There is a beaker filled with a solution under a light bulb capable of various light color and intensity in an experimental laboratory. When the light turns on a chemical reaction occurs that alters the appearance of the solution, which responds to the intensity and specific frequency of the light (catalyst).

This animation of the chemical reaction with music suggests a romantic emotional reaction of the solution to the light bulb.

### **Synopsis**

The light turns on above a glass beaker filled with solution. The light is colored blue. A small crystal forms in the solution while some tiny colloidal substances also appear and float inside the solution. As the light increases its intensity, the small crystal moves slowly with circular motion, rotates, floats and stops occasionally. The movement is dance-like and varies in tempo with the music.

As light become more intense, the crystal slowly rises toward the surface of the solution. It begins to grow and forms a long chain similar to a ladder toward the light source by duplicating itself and connects one after another. The crystal chain reaches for the light source but is not stable and struggles upward. When, the growth is about half way to the source the light color changes gradually to green. The crystal chain collapses, breaking into pieces and dissolving into the solution.

The color of the light changes from green to yellow and the colloidal substances get denser and become dominant in the solution.

The light suddenly changes color to orange. The colloidal substances decrease rapidly and a crystal forms and floats upward toward a light source

while growing dynamically to a complex hexagonal shape. As light color rhythmically alternates between orange and pink the complex crystal shape takes on various shapes such as a pentagon and fractal dragon shape in step with the changing of light color.

Light color changes slowly from pink to purple and the complex crystal responds by shrinking and dissolves as small clusters of colloidal substances appear and interact. The light slowly decreases its intensity to zero and turns off. The crystals and colloidal substances disappear and the solution is clear.

### **Approach**

This film is a 3D CGI primarily made with Autodesk Maya.

My challenge in this project is to invoke an emotional response in my audience as they watch a simulation of an inorganic crystallization experiment. To accomplish it I will use music and animation to suggest an urgency and yearning of the solution as it reaches for the light. I have chosen a piece of music called *Swan Lake: Act 3: I: Moderato-Andante* by Tchaikovsky. The music will help guide the timing and pace of this animation. In addition, I am buying a recording from UNIQUETRACKS an online source of royalty-free music.

To animate the crystal growth I will create scripts with mathematically driven randomization and recursion. These scripts will undergo constant refinement to better serve the emotional needs of the film “story”.

As a strategy throughout my thesis project, I will spend a large amount of time on my pre-visualization period to obtain images that are very close to the final output. The creation of the complex objects and visual qualities of this particular project depends heavily on the limitation of the processing power available to me. Testing and optimizing my scripts to efficiently work with lighting and textures is significant before moving to the animating period.