

11F | International Day of Women and Girls in Science



Introduction		2
Talks		3
Theorical Part: Female Scientists thr	oughout History	3
Practical Part: Experiments		3
Locations		4
Impact		
Televisión		
Printed Press		
Social Networks		
Final Conclusions		17







ICCRAN

INTRODUCTION

The February 11th initiative was born as a response to the imperative need of "Making women's work more visible and try to persuade female students to choose scientific and technological careers". February 11th, the International Day of Women and Girls in Science, aims to ease the access to science for girls and women and pursues equality and parity for those females who are already part of the scientific community.

People engaged in research, teaching and scientific outreach, from different institutions and agencies, take part on several activities in order to promote the teachings related to Science, Technology, Engineering and Mathematics, draw the youngsters attention and interest and encourage genre equality.

From February 1st to February 15^{th,} scientists from different fields of investigation working in ICCRAM took part in the initiative, carrying out several activities - mainly talks, lectures and workshops – that took place in many schools in Burgos. Among the hold activities, workshops turned out very appealing for young people as they included uncomplicated experiments and were adequately interactive and fun.

The common thread for these scientific disclosure actions is the "GREENER" project. In a very simple way, microbiological and electrochemical experiments were carried out so students could get to know some of the techniques, developed within the project, employed for soil remediation and environmental protection. All the activities were designed for different educational levels, from 5-years-old kids to 16-years-old teens.

In each and every activity, there is always a little space of time dedicated to introduce the "GREENER" project to students and raise their awareness of the importance of taking care of the environment.









TALKS

During the first fortnight of February, several workshops were hold in different schools and highschools in Burgos. All of them took place during the school hours excepting one, which was open to the public and was hold in the afternoon at "La Estación".

There were two teams. One, made up of Cristina, Félix and Lara; and another one, formed by Sonia y Rocío.

Every workshop was split into two parts. The first part was theorical and tried to present prominent female personalities throughout history; and the second one, more of a practical kind, that gave the opportunity for students to witness and collaborate of some experiments.

Theorical Part: Female Scientists throughout History.

<u>Merit Ptah</u>: The first renown woman in the History of Medicine and, possibly, in all Science History. A depiction of Merit can be seen at the necropolis close to Saggara's staggered pyramid. Her son, who was a high priest, described her as "head doctor".

Tapputi (Tapputi-Belatelallin): She is considered as the first chemist in the world. She was a perfume-maker, supervisor of the Royal Palace and co-worker of someone whose name is today forgotten.

<u>Maria la Judia</u>: She was the first known female alchemist. She developed different formulas to make gold and designed distillation and sublimation devices.

<u>Nicole-Reine Lepaute</u>: She was a french astronomer and mathematician. She predicted the coming back of Halley comet, calculated the duration of the eclipse and its shadow location. She also developed a group of star catalogs.

<u>Wang Zhenyi</u>: A very famous chinese scientist who struggled to overcome many feudal traditions that hinder women growing and development. Zhenvi had her own theories about how eclipses worked and studied the chinese calendar. She used her telescope to measure the stars and explained the Solar System's rotational movement.

<u>Jeanne Villepreux-Power</u>: A pioneer in marine biology and the first woman in making an aquarium to observe, study and experiment with aquatic beings.

<u>Mileva Maric</u>: She was the first wife of Albert Einstein. There is no little controversy about her participation on the calculations and findings ascribed to Einstein.

<u>Maria Salomea Skłodowska-Curie (Marie Curie)</u>: Pioneer on the radioactivity field, Marie was the first person in history to receive two different Nobel prizes – in Physics and Chemistry – and the first woman to occupy a position in the University of Paris.

<u>Rosalind Fraklind</u>: She was a british chemist and chrystallographer who played a fundamental role on discovering the functioning of the double DNA helix.

Margaret Hamilton: Computational scientist, mathematician and systems engineer. She was the director of the Software Engineering Division of the Instrumentation Laboratory of MIT, where her team developed the "on-board" navigation software for the Apolo Space Program.

Practical Part: Experiments.

Volcano

Sodium bicarbonate and vinegar erupt due to an acidic-basal reaction: NaHCO_{3 (s)} + CH₃COOH (l) ' $CO_{2 (g)}$ + H₂O (l) + Na ⁺(aq) + CH₃COO ⁻(aq) Breaking it down: NaHCO₃ ' Na⁺(aq) + HCO₃⁻(aq) CH₃COOH ' H⁺(aq) + C H₃COO⁻(aq) H⁺ + HCO₃⁻ ' H₂CO₃ H₂CO₃ ' H₂O + CO₂

The acetic acid, which is a weak acid, reacts and neutralizes the sodium bicarbonate (basal). The expelled carbon dioxide is a gas and is responsible of the sparkling during the "eruption".



Greener



Potato

The part of Chemistry that studies transformations from chemical energy into electrical energy, and vice versa, is called "**Electrochemistry**". This is exactly what occurs in this experiment.

The electrical current produced out of the "potatoes battery" comes out of a chemical reaction that takes place between the anode (negative electrode, zinc) and the cathode (positive electrode, copper).

Oxidative semireaction: Anode (negative electrode)

 $Zn_{(s)} \rightarrow Zn^{2+} + 2e^{-} E^{o} = +0,76 V$

Reductive semireaction: Cathode (positive electrode)

 $Cu^{2+} + 2 e^{-} > Cu_{(s)}$ $E^{o} = +0,34 V$

 $E^{o}_{battery} = E^{o}_{Cathode} - E^{o}_{Anode} = +0,34V-(-0,76V) = +1,1V = Spontaneous Reaction.$

It is worth mentioning that potatoes or lemons, or any other citric fruit, contain, among many other substances, water and organic acids, such as citric or malic acid. All these acids present, in their chemical composition, carboxyl groups (R-COOH). When acids are in watery dissolution, the carboxyl group is dissociated into two ions: one negative (COO–) and one positive (H+). Due to the ions, the potato acts as an electrolyte, which means it is a conductive substance of electricity.

If a zinc-covered nail and a copper coin are inserted into the potato, each zinc atom loses two electrons releasing Zn2+. These lost electrons will travel through the conductive cable to the other extreme.

Obviously, potatoes will not be the miraculous solution to energetic problems. This experiment, nonetheless, shows the importance of researching and understanding Nature.

Slime

White glue contains a polymer called PVA (Polyvinyl Acetate). Borax in water is ionized allowing the cross-linking of the different PVA molecules.

Locations

Padre Manjón

Both teams, made up of Sonia, Rocío, Cristina, Félix y Lara, attended the first event hold in the public school *Padre Manjón*. During this event, children could enjoy and take part on previously mentioned experiments. In addition to this, another experiment, adapted for toddlers, was conducted by our teams so the 3-years-old kids could filter the trash out of a hydrogel ball pool.





GREENER project has received funding from the European Union's Horizon 2020 research and innovation programme under the Grant Agreement No. 826312





Magea

The second event took place in *Magea*, a school located in Castrillo del Val, where the team formed by Lara, Cristina y Félix held a workshop, that consisted of two talks, in which all students participated.



Círculo

The third event was also conducted by Félix, Lara y Cristina and was hold in *Colegio Círculo* with the participation of 9-years-old children.









FreeTime

The second activity performed by Rocío and Sonia was hold in *FreeTime Urbano*, an Active School for kids in non-school age. Due to the early age of the participants, the theorical part was spared.















La Estación

The very last event for the February 11th initiative took place at La Estación de la Ciencia y la Tecnología, a leisure space of the Council in collaboration with the University of Burgos. In this occasion, only young girls participated of the activities and experiments. In cooperation with the UCC+i of Burgos, Lara and Cristina performed some experiments for two different groups of girls.



Complete Photo Album of 11F activities by ICCRAM: http://bit.ly/11F2020_ICCRAM









Імраст

Thanks to communication actions developed from ICCRAM, the activities promoted by the research center has had a positive impact, with the support of press, as well as an interview in a local TV channel. In all the activities we have taken photos and videos, which are posted in social networks, increasing the impact of 11F action, and GREENER project.

Via UBU's press bureau, a press release was sended to every news media reporting about the developed activities, explaining GREENER project and informing about the research center, and project partners.

Televisión

On tuesday 11th of February, our colleagues Brixhilda Domi, Cristina Cancho and Lara Lubián participated in the TV space "Magazine" in La8 Burgos CyLTV. In the programme, they explained what ICCRAM is and the job developed in the research center's projects. During the programme, the researchers had the opportunity to talk about the relevance of infusing passion for science from an early age, and how we can reduce the alarming figures about the gender gap regarding the STEM careers. Also, Cristina and Lara spoke about the research lines of the GREENER project.





URL: https://www.youtube.com/watch?v=_85KFKTBOA4

Printed Press

During the week of activities, mass media become aware of workshops performed by ICCRAM team. This disclosure is important to wide public, because in addition to technical dissemination, is very important to communicate and raise awareness of the research developed in the center, and it's projects. These mass media has centered their attention in 11F days, promoting GREENER project and ICCRAM.







ICCRAN

Actualidad UBU

24/2/2020 El ICCRAM participa en el Día Internacional de la Mujer y la Niña en la Ciencia | Universidad de Burgos
UNIVERSIDAD
DE BURGOS

El ICCRAM participa en el Día Internacional de la Mujer y la Niña en la Ciencia



Desde el 1 al 15 de febrero, científicos de varias áreas del centro de investigación ICCRAM participarán en esta iniciativa internacional con diferentes actividades científicas en seis colegios e institutos de Burgos, destinadas a estudiantes de

Educación Primaria a Bachillerato. Los talleres con experimentos científicos incluyen charlas para aportar a los estudiantes un contenido dinámico y divertido.



La iniciativa 11 de Febrero nace de la necesidad de "visibilizar el trabajo de las mujeres científicas y despertar vocaciones en las estudiantes para que elijan carreras científicas y tecnológicas". El 15 de diciembre de 2015 la Asamblea General de las Naciones Unidas proclamó el 11 de febrero de cada año como el Día Internacional de la Mujer y la Niña en la Ciencia con el objetivo de lograr el acceso de las

mujeres y las niñas en la ciencia y su participación plena y equitativa como manifestación de la igualdad de género y el empoderamiento de las mujeres y las niñas. Un grupo de mujeres y hombres que se dedican a la investigación, la docencia y la comunicación científica en diferentes instituciones se unió para organizar actividades relacionadas con las mujeres científicas, promover las enseñanzas STEM (ciencia, tecnología, ingeniería y matemáticas) desde edades tempranas y favorecer la igualdad de género en el ámbito científico.

Los investigadores que impartirán estas charlas son Brixhilda Domi, estudiante de doctorado Marie-Curie en el tema de la nanotoxicología, Cristina Cancho, especialista en radiodiagnóstico y nanotoxicidad, Lara Lubián, graduada en Química y Félix Laguna que se dedica al campo de la bioinformática, Sonia Martel investigadora principal del proyecto Europeo Light-me y Rocío Barros coordinadora científica del proyecto GREENER. Entre los centros en los que se realizarán las actividades se encuentra el CEIP Padre Manjón, IES Comuneros de Castilla, IES Pintor Luis Sáez, Magea, Colégio Circulo y Freetime Urbano, todos ellos mostraron su interés a través de la <u>plataforma online 11 de Febrero</u>.

El hilo conductor de las actividades propuestas es el proyecto GREENER, dedicado a la investigación sobre técnicas de descontaminación de aguas



y suelos. De manera sencilla, se realizarán experimentos de microbiología y electroquímica para entender algunas técnicas de remediación de suelos https://www.ubu.es/agenda/el-iccram-participa-en-el-dia-internacional-de-la-mujer-y-la-nina-en-la-ciencia

Horario:

Martes 4 de febrero de 2020 a las 09:30 Miércoles 5 de febrero de 2020 a las 10:30

Martes 11 de febrero de 2020 a las 13:30

Miércoles 12 de febrero de 2020 a las 10:45

Jueves 13 de febrero de 2020 a las 10:30 Viernes 14 de febrero de 2020 a las 12:30

Lugar:

Martes, 4 de febrero de 2020: CEIP Padre Manjón Miércoles, 5 de febrero de 2020: Magea Martes, 11 de febrero de 2020: IES Comuneros de Castilla Miércoles, 12 de febrero de 2020: Colegio Círculo

Jueves, 13 de febrero de 2020: IES Pintor Luis Sáez

Viernes, 14 de febrero de 2020: Freetime Urbano

Convocante

International Research Center in Critical Raw Materials for Advanced

Industrial Technologies (ICCRAM)

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Categoría:

Actividades científicas y académicas

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URL: https://www.ubu.es/agenda/el-iccram-participa-en-el-dia-internacional-de-la-mujer-y-la-nina-en-la-ciencia







Diario de Burgos



PEQUEÑAS MANOS PARA **GRANDES PROYECTOS**

Científicos del ICCRAM acercan la ciencia a los escolares de 6 colegios y visibilizan el papel de las mujeres en la investigación. Ayer lo hicieron con 45 alumnos de Infantil del Padre Manjón

B.G.R. / BURGOS

<text>

Ides entre los que no podra faltar de de darác torre. e Los esquaraba social da la comparación de la comparación de social da la comparación de la co funcionaban como si se tratara de una pila que genera luz led.

INTERÉS. «Son experimentos que les permiten palpar de alguna for-ma por qué pasan las cosas para despertar su interés y curiosidad». destacaba Martel. Divididos en grupos, cada uno con su cometido,

DECLARACIONES NURIA GARCÍA PROFESORA DE INFANTIL

«Repasaremos en el aula lo que hemos hecho en los talleres para ver en qué medida han

conocimientos»

adquirido los

SONIA MARTEL

«Son experimentos que permiten de alguna forma palpar por qué pasan las cosas»

ROCÍO BARROS INVESTIGADORA PRINCIPAL

«Con el proyecto Greener desarrollamos tecnologías innovadoras para la descontaminación de aguas y suelos»

sus profesoras, Raquel Juárez y Na-ria con la incicativa del ICCRAM y la con la contrata de la contrata su con la contrata de la contrata su contrata de sus alumnos. A les contrata de sus alumnos e la contrata su contrata de la contrata da contrata de la contrata de la contrata su contrata de la contrata de contrata de la contrata de la contrata su contrata de la contrata su contrata de la contrata su contrata de la contrata de contrata de secontrata de contrata su contrata de contrata de contrata de secontrata de contrata su contrata de contrata de contrata de secontrata de contrata su contrata de contrata de contrata de secontrata de contrata su contrata de secontrata de contrata de secontrata de contrata su contrata de contrata de contrata de secontrata de contrata de secontrata de contrata de seste personas, a las que presen-tanterios en su de sarrollo 21 so-contrata de socueros de los cuales la UEU ges-terior del se contrata la contrata de contrata de socueros de los cuales la UEU ges-terior de los cuales la UEU ges-

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Burgos Conecta

24/2/2020 Toda la actualidad de la Universidad de Burgos en BURGOSconecta El ICCRAM de la Universidad de Burgos participa en el Día Internacional de...

Universidad de Burgos

El ICCRAM de la Universidad de Burgos participa en el Día Internacional de la Mujer y la Niña en la Ciencia



El hilo conductor de las actividades propuestas es el proyecto Greener, dedicado a la investigación sobre técnicas de descontaminación de aguas y suelos



El **centro de investigación en Materia Primas Críticas ICCRAM** asociado a la Universidad de Burgos participa en la **iniciativa '11 de Febrero, Día Internacional de la Mujer y la Niña en la Ciencia'**, un evento que se celebra entre **el 1 y el 15 de febrero en seis colegios e institutos de Burgos**, destinadas a estudiantes de Educación

https://www.burgosconecta.es/burgos/universidad/iccram-universidad-burgos-20200131114238-nt.html?ref=https%3A%2F%2Fwww.google.com%2F

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URL: https://www.burgosconecta.es/burgos/universidad/iccram-universidad-burgos-20200131114238-nt.html







Social Networks

💟 Twitter

4 Moment 11F 2020: <u>https://twitter.com/i/events/1232637974845718528</u>

Previously the Activities





Ggreener





#Events_ICCRAM | En 2020 nuestros #ICCRAMers participarán en diversas charlas celebrando la iniciativa @11defebreroES ?? Ya tenemos las charlas #enclase11f concertadas!

#MujerYNiñaEnCiencia #11F2020 #Burgos



Lía Mujer y Ciencia y 8 más

1:38 p. m. · 15 nov. 2019 · Twitter Web App

ICCRAM UBU @ICCRAM_UBU · 17 ene.

En respuesta a @ICCRAM_UBU @11defebreroES y 8 más #Events_ICCRAM | Lara, Cristina y Félix se lo pasan genial S Ya estamos preparando el material para los experimentos #EnClase11F. +info en hilo

#11F2020 #DíaMujerYNiñaEnLaCiencia

@mageaescuela @PadreManjon #Comuneros @ColegioCirculo @lesPintor @freetimeburgos @PadreManjon



Universidad Burgos y 5 más ♀ 1 1 ↓ 3 ♡ 3 1 1 ||



Universidad Burgos y 4 más ○ tì 6 ♡ 16 tì ılı



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ICCRAM





#Events_lccram | Científicos de lccram acercan la #ciencia a los escolares de 6 colegios y visibilizan el papel de las mujeres en la investigación (a). La semana pasada lo hicieron con alumnos de @PadreManjon y @mageaescuela Vía: @diariodeburgos





PEQUEÑAS MANOS PARA GRANDES PROYECTOS or del ICCRMA accrca la ciencia a los escolarse de 5 colegios y visibilizar el papel de presen si investigación. Ayer lo hicitorico con gá alumos de infiniti del Pater Manjor ICCRAM UBU @ICCRAM_UBU · 11 feb.

#Events_ICCRAM | Nuestras compañeras Brixhilda, Lara y Cristina promocionan las actividades @11defebreroES en @la8burgos 🝎

#MujeresEnCiencia #11F2020 #WomenInScience #SoLuTion @GreenerH2020



dt.



ICCRAM UBU @ICCRAM_UBU · 13 feb.

En respuesta a @ICCRAM_UBU @11defebreroES y 8 más #News_ICCRAM | Nuestras compañeras Brixhilda, Cristina y Lara promocionan las actividades @11defebreroES que llevamos a cabo en @Ia8burgos

"Gracias a estas iniciativas conseguimos que más niñas quieran participar en la ciencia"



DIA INTERNACIONAL DE LA MUJER Y LA NIÑA EN LA CIENCIA 11-02-2020 & youtube.com

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GREENER H2020 project

17 2

The Research Center @ICCRAM_UBU participated in the initiative "February 11st", International Day of Women and Girls in Science, presenting @GreenerH2020 project objectives to students. #EU_H2020 #GREENER #womeninscience

0 4

Traducir Tweet





Ggreener







#News_ICCRAM | Los peques del #PadreManjon se lo pasan genial y descubren experimentos #enClase11F

@11defebreroES #MujeresEnCiencia #11F2020 #DíaMujerYNiñaEnLaCiencia #WomenInStem



Luniversidad Burgos y 3 más



ICCRAM UBU @ICCRAM UBU · 14 feb. #Events_ICCRAM | El último día de actividades #EnClase11F lo disfrutamos con los peques de @freetimeburgos #Urbano y nuestras compañeras Rocío y Sonia

#MujeresEnCiencia #11F2020 #WomenInScience @GreenerH2020 @11defebreroES #MujeresEnCiencia #11F2020 #WomenInScience @GreenerH2020





@ICCRAM UBU

21 #Events_ICCRAM | Ya tenemos las 10 fotos de las charlas #EnClase11F del colegio @PadreManjon durante @11defebreroES

Álbum completo 두 facebook.com/pg/iccram.ubu/...

#MujeresEnCiencia #11F2020 #DíaMujerYNiñaEnCiencia #WomenInStem #MujerYCiencia





ICCRAM UBU @ICCRAM_UBU · 12 feb. #Events_ICCRAM | Los alumnos del @ColegioCirculo disfrutan las actividades #EnClase11F y los experimentos con nuestros compañeros Lara, Cristina y Félix

@11defebreroES #MujeresEnCiencia #11F2020 #WomenInScience @GreenerH2020





ICCRAM UBU @ICCRAM_UBU · 5 feb. eaEscuela conocen muy bien ts_ICCRAM | los alumnos de @Ma a las #MujeresEnCiencia, y disfrutan de los experimentos #enC e11E

@11defebreroES #11F2020 #DíaMujerYNiñaEnLaCienci erH2020





V

million for the second charlas #EnClase11F del 🎬 colegio #Magea por el 👰 Día de la Mujer y la Niña en la Ciencia 🧪

Álbum completo: 👉 facebook.com/pg/iccram.ubu/...

#MujeresEnCiencia #11F2020 #DíaMujerYNiñaEnCiencia #WomenInStem #MujerYCiencia





G greener



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Iccram — 💩 me siento inspirado(a) en Colegio Publico Padre Manjon. 24 de febrero a las 12:25 - Burgos - 😡

#Events_ICCRAM | Ya tenemos las fotos de las charlas #EnClase11F del 👷 colegio #PadreManjon durante el 11 de Febrero

Álbum completo:
https://facebook.com/pg/iccram.ubu/photos/?
tab=album&album_id=2423207731328638

#MujeresEnCiencia #11F2020 #DíaMujerYNiñaEnCiencia #WomenInStem #MujerYCiencia ••• Iccram Ayer a la

Iccram — 🐸 me siento motivado(a) en Magea. Ayer a las 10:24 · Castrillo del Val · 😡

#Events_ICCRAM | Ya tenemos las fotos ad las charlas #EnClase11F del _____colegio Magea por el ____Día de la Mujer y la Niña en la Ciencia // Álbum completo: -/https://www.facebook.com/pg/iccram.ubu/photos/?

tab=album&album_id=2423986971250714 #MujeresEnCiencia #11F2020 #DíaMujerYNiñaEnCiencia #WomenInStem #MujerYCiencia







in LinkedIn



120 seguidores 2 horas • Editado • 🕲 + Seguir ····

ICCRAM 120 seguidor 2 horas • S + Seguir ····

#Events_ICCRAM | Ya tenemos las fotos de las charlas #EnClase11F del Colegio Magea Escuela Activa por el de Día de la Mujer y la Niña en la Ciencia

Álbum completo: 👉 https://lnkd.in/dHQyN-U

#MujeresEnCiencia #11F2020 #DíaMujerYNiñaEnCiencia #WomenInStem #MujerYCiencia GREENER Project H2020



Iccram facebook.com

#MujeresEnCiencia #11F2020 #DíaMujerYNiñaEnCiencia #WomenInStem #MujerYCiencia GREENER Project H2020



11 Febrero | PADRE MANJÓN facebook.com











FINAL CONCLUSIONS

Thanks to the communication work in collaboration with the initiative *11 de Febrero*, *UCC+i* of University of Burgos, *CENIEH* and local mass media, ICCRAM research center and GREENER project has had a positive impact, reaching between all of them more than **250.000** people.

Events like this lets to reach to a wide public, so we must to take advantage of this opportunities to spread our work, which is essential in dissemination activities at any H2020 project. We have the commitment of show and get perceived that we collaborate extending the culture of communicate science aimed to the general public and to reinforce the role of women in the Science.

